ARTISAN

APRIL 1958 ...

Contants Page

.. The Magazine of

RESIDENTIAL AIR CONDITIONING

WARM AIR HEATING . SHEET METAL CONTRACTING

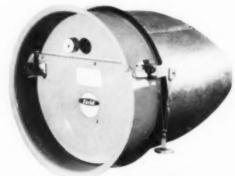


Let's "audit" that "industry audit" 4

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A new triple fuel control, the M+MG2 is available in 10" through 32" sizes for oil, oil-gas, gas, and solid fuel furnaces and boilers, employing either natural, induced or forced draft. A very heavy duty, highly sensitive control, it can maintain draft settings as low as .002" and as high as .3". Write for

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It's great performance like this that's rapidly making these super-filters the most wanted in America. More and more, it pays — and pays—to put in PLIOTRON. To cash in yourself, write Goodyear, P. O. Box 288, Akron, Ohio.



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GOOD YEAR

Pliotron - T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

THE GREATEST NAME IN RUBBER

AMERICAN

APRIL 1958

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Founded 1864; Vol. 95 No. 4

RESIDENTIAL AIR CONDITIONING WARM AIR HEATING SHEET METAL CONTRACTING

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

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Published monthly by Keeney Publishing Company, 6 N. Michigan Ave., Chicago 2, Ill., U.S.A. Copyright 1958 by Keeney Publishing Company.

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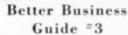


Member of Audit Bureau of Circulations, Magazine Publishers Association, Inc., and Associated Business Publications

Yearly Subscription Price—U.S. and possessions, \$3.00; Canada, Cuba, Mexico, South America, Central America, \$4.00; Others \$6.00. Single copies, U.S. and possessions, 35c. Back numbers, 60c. January, 1958, Directory Issue, \$1.50; March, 1958 Modernization Issue, \$1.00 per copy. Change in Address: Report new and old address to publisher and local post office; deadline date 18th of preceding month. Entered as second-class matter, July 29, 1932, at the post office at Chicago, Illinois, under the Act of March 3, 1879. Additional entry at Mendota, Ill.

How successful dealers look for leads

canvassing program offer the advantage of personal contact . . . present a quick, clear picture of the homeowner's heating problems or inclinations toward cooling. Secret of success lies not only in who does it, but in how and when it's done.



Tasteful quality gifts make a tempting incentive for past customers to volunteer names of new prospects. Through a special arrangement, Mueller Climatrol makes premiums like those at right available to the dealer at greatly

reduced prices.



Industry statistics show that half the homes in this country do not have central heating, that less than 2% are centrally air conditioned. At the same time, research indicates that many homeowners are interested in modernizing their home comfort equipment.

Why, then, aren't customers beating down the heating and cooling dealer's door? Quite simply, people also want new automobiles, furniture, appliances — and can't resist the greater sales pressure behind these products. As many a successful dealer has found, if you want profitable modernization business, you must go after it!

How It's Done

The element most essential to suc-

cess is a planned prospecting program for uncovering leads. Among the most popular methods are these:

- Direct mail Lets you concentrate your advertising on your own prospects, But programming not just an occasional mailing and personal follow-up are essential.
- Canvassing Door-to-door and telephone canvassing programs reach a great number of prospects in quick succession, can be conducted by present or part-time help. Here too, coordinated planning and follow-up are extremely important.
- Using the user Based on the experience that word-of-mouth advertising is a potent selling tool, this program puts past customers to work uncovering new ones.

Easy to Organize

Mueller Climatrol's wide selection of promotional aids includes everything you need to set any or all of these programs in motion. What's more, your Mueller Climatrol representative welcomes the chance to work with you in "tailoring" a program to your locality. Why not contact him today, or write...

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Division of Worthington Corporation

the editor's notebook

Thumbing Through This Month's Artisan

. . . we see applications of some of the points presented in the March Modernization Issue, such as How Associations Can Promote Modernization with high powered promotion and assistance programs to help their members capitalize on the rich modernization market. We witness some of the activities of local associations across the country in making the public modernization-conscious through strong promotion, at the same time identifying their members as modernization specialists. We note some of the routes taken by these organizations in selling replacement and remodeling, and we find some further recommendations for effective promotion, member training programs, and management techniques which will direct heating-air conditioning-sheet metal dealercontractors toward a common goal which benefits everybody concerned with the replacement and remodeling field.

Basements

. . . and we investigate a problem about which little is known, but which the heating dealer-contractor is often called on to solve in providing even and ample distribution of warm air in remodeled basement roomsthat of How to Estimate Below-Grade Heat Losses. In part one of a two-part treatment of this important topic, author Guy Voorhees discusses the methods commonly used, earth temperatures and conditions, and other factors which influence heat transmission, tells where to find pertinent information and makes sample calculations under typical conditions,



the editor's notebook

using the methods which have been proved by experience.

Coil

. . . we turn again to the psychrometric chart to establish the facts about heat transfer from air to refrigerant which must be known in order to answer correctly the question, What Makes Cooling Coils Cool? We plot the actual cooling path which shows cooling coil efficiency under given conditions, and we create a basic cooling coil to demonstrate what happens to air in the cooling process, to understand some of the problems involved and points to check in installation and servicing air conditioning equipment. We define and discuss the contact and refrigerant factors which determine cooling coil performance, and we study equations which solve some of the problems that air conditioning dealer-contractors might expect to encounter.

Deck

. . . and we realize we can Thank the Automobile for the Big Market for Metal Roof Deck, which has come into demand largely because of the modern rambling style of residential, commercial and industrial architecturebrought on by the elimination of distance as a limitation to living and doing business in outlying areas. Having established the reason for the demand, we analyze the three basic types of roof deck, study the advantages and disadvantages of each, and compare them to other types of roofing. Victor G. Pignolet gives us some installation pointers, recomtime saving, money-making

IDEAS

from the

catalog



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the editor's notebook

(Continued)

mends procedures, tools and sizes, and outlines precautions to help us plan profitable installations.

Sheet Metal Worker's Son Wins Scholarship

DONALD JERINA, a River Grove, Ill. high school student, recently won a \$4000 scholarship in a nationwide contest conducted by the Westinghouse Education Foundation. His entry, a report on the reaction of bromines on vanillin, included a good sized exhibit designed to demonstrate the points brought out in his study.

Donald is the son of Anthony Jerina, a sheet metal foreman at the Zack Co., Chicago ventilating and air conditioning firm. In talking to Donald, we learned that he, too, has done some sheet metal work, having been employed during summer vacations in the Zack company's shop.

His sheet metal training came to good use when he was faced with the problem of finding the right kind of a container - one that was sturdy as well as properly sized — to use in sending his entry to contest headquarters at Washington, D. C. Some of the other contestants might have had a little difficulty with this problem, but the solution was relatively simple for Donald. He and his father fabricated a madeto-measure shipping case out of sheet metal, of course.

Artisan Staff Thanks Panel Consultants

I'd LIKE to take this opportunity to express my appreciation to all of the dealercontractors who assisted the editorial staff by reviewing the articles presented in the March modernization issue



XXTH CENTURY

HEATING & VENTILATING CO.

96 IRA AVE.

AKRON, OHIO

the editor's notebook

(Continued)

and whose comments made it possible for us to include all of the points that are so important to a complete treatise on a major subject such as promotion and exploitation of the modernization market.

Urges Patience With 'Slow' Employees

Do you have an "addlepated assistant"? The American Management Association describes this type of person as one who bothers his boss about every little thing and then fails to follow through on very plain instructions. I guess every business is handicapped with this type of individual, and the only advice that can be offered management is to remember that it takes patience and tolerance to develop reliable employees. Don't give up too soon, especially if the employee has been in the business only a few years. There are many more skills required of men in this industry than in other trades.

Get Your Share of School Heating Market

THE SCHOOL CLASSROOM shortage continues to be a serious problem to educators in spite of the huge school building program. The great need for additional schools will continue for another 10 years, according to Lawrence G. Derthick, U. S. Commissioner of Education. This need for additional classrooms means more work for the sheet metal and heating industry.

The backlog of classrooms needed is based upon the large number of children (2.3 million) for whom there was no room last September when 31.5 million children reported for public school classes. Commissioner

Here's what U.S. Steel Supply's

ANY STEEL ANYWHERE ANY TIME SERVICE

means to Specification Steel Corp.

"U.S. Steel Supply Service has helped us

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says Ray N. Stephens, president and general manager,
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"We have reduced our on-hand inventory more than 70% by dealing with U. S. Steel Supply," says Mr. Ray N. Stephens, president and general manager, Specification Steel Corporation, Colton, California.

"Two years ago we maintained an on-hand inventory of 630 tons of assorted shapes and sizes of structural steel, plus considerable sheet and bar stock," says Mr. Stephens. "This space-eating inventory required a huge investment of over \$100,000, which meant that less working capital was available for plant expansion and efficient production.

"Because of U. S. Steel Supply's ability to deliver what we want . . . when we want it," continues Mr. Stephens, "we now carry less than 30% of our former inventory—and the working capital, previously tied up in plant inventory, has been channeled into increased production facilities and accounts receivable requirements."

Steel fabricators, such as Specification Steel Corporation, have found that by using ANY STEEL, ANYWHERE, ANY TIME SERVICE it is actually less expensive to buy from U. S. Steel Supply.

Here's how to put this service to work for you!

Your steel needs, regardless of your location, can be handled immediately and accurately by U. S. Steel Supply's Any Steel, Anywhere, Any Time Service. You'll get money-saving, time-saving and problem-solving benefits when you deal with U. S. Steel Supply, plus the invaluable experience of our technical people and our sales representatives.

If you want one of our representatives to help you plan for new efficiency, new economy and new profitability in your future steel buying, write to U. S. Steel Supply at the address listed below.

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General Offices:
208 So. LaSalle St., Chicago 4, Ill.

Warehouses and Sales Offices Coast to Coast

UNITED STATES STEEL

the editor's

notebook

Derthick points out that the 2.3 million students were accommodated by overcrowding and by providing two-shift school programs, both of which are detrimental to good instruction. He speaks of the lack of sufficient teaching facilities as "The Stolen Years."

One of the problems faced by local school boards is the cost of constructing the new buildings needed. One way to reduce costs is through the use of direct-fired warm air heating systems. We've reported a number of cases where warm air heating systems have been used. Dealers who learn that schools are being planned for the communities served by them can show school boards how installation and maintenance costs can be cut and how warm air heating systems have been effectively used in cold climates. The article, "Individual Perimeter Systems Heat Clustered Classrooms," published in the August American Artisan, pages 52-55, is a good example.

Office Staff: Source Of Profit or Overhead?

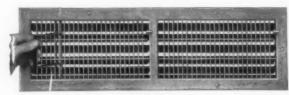
FOR TOO LONG a period, it has been considered by businessmen that the expense involved in operating an office section is a necessary evil in the management of the business. A recent survey conducted by Dun's Review and Modern Industry shows that the office staff can be an important part of the profit producing activity of the company. The survey, conducted among 376 companies, shows that modern office machines and properly supervised jobs can reduce the costs involved in shop and field work. The survey also showed that office staffs have increased in ratio to the

DIRECTED AIR FLOW



Every grille bar adjustable individually—before or after

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Any direction of air flow—right, left, up, down and any combination—is easily obtained with "Fabrikated" Style No. 321-A HMV air conditioning registers, for residence or commercial installations, on sidewalls or ceiling. The face bars are adjustable to right or left; valves on the back are adjustable to direct the air flow up or down; valves may also be fully closed, and are connected to open or close in unison.



the editor's notebook

number of productive workers. In 1942 the ratio of office workers to productive workers was 16 to 100 — this has increased to 28 to 100 during 1957.

Noteworthy Quotes From AC Symposium

HERE ARE a few random comments from officials heard at the Government-Industry Symposium on Air Conditioning in Washington, D. C.:

"LET ME SAY that air conditioning at its best is far more than just cooling or heating. It is temperature and humidity control. It is the cleansing and circulation of air. It is ventilation. If you have air conditioning at its best, you have all of these and you have them simultaneously."—Cloud Wampler, Chairman of the Board, Carrier Corp.

"THE LARGEST single class of property owner in America is the homeowner. It is not at all improbable that every home in the United States before long will be completely air conditioned. A house without it will be as antiquated as the house with the Franklin stove."—Leon Chatelain, Jr., President, American Institute of Architects.

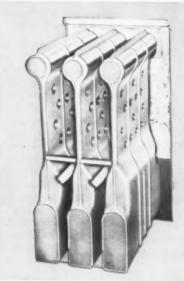
12 Points to Remember In Building a Business

IN A RECENT issue of "Comfort Times" sent me by Joe O'Connor, Bryant O'Connor Co., Inc., Wichita, Kans. wholesaler, I came across a very interesting bit of good business advice. The 12 items, credited to the late Marshall Field, are excellent pillars around which a business can be built and developed. The 12 points are:

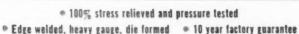
She has features you appreciate ...

THE HEAT EXCHANGER THAT FLOATS TO PREVENT JACKET RACKET





...in the new
CENTURY
GAS
FURNACES



Not solidly tied to the jacket, this heat exchanger floats on soft Fiberglas gaskets. All noise due to different coefficients of expansion is eliminated. Baffles in passages around the element assure a continuous mixture of air. Discharge air maintains an even temperature.

Inside the jacket around the exchanger is a complete covering of glass wool faced with aluminum foil. Heat is reflected inward...heat loss is kept to a minimum.

The unit may be removed without disassembly of jacket or ductwork. These are a few of the 30 Century advantages which assure better performance...please your customers...and reduce installation and service time.

Century gas furnaces come completely set up and wired for operation. You choose from a full range of capacities . . . 80,000; 100,000; 120,000; 140,000; 180,000 and 200,000 BTU input for basement and utility room . . . 80,000; 100,000; 120,000; 140,000 and 160,000 for counterflow applications. The heavy cast iron burner is one piece with slotted ports. Optional direct or belt-driven blowers are big enough to assure smooth operation under cooling loads.

Let us send you all the facts on this exciting gas furnace. Write us today.



You can count on



for comfort

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Cedar Rapids, Iowa

the editor's notebook

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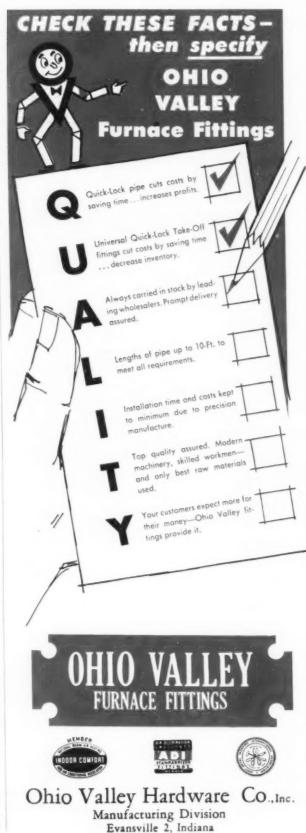
- 1) The value of time
- 2) The success of perseverance
- The pleasure of working
- 4) The dignity of simplicity
- 5) The worth of character
- 6) The power of kindness
- 7) The influence of example
- 8) The obligation of duty
- 9) The wisdom of economy
- 10) The virtue of patience
- 11) The improvement of talent
- The joy of originating

Reid's New Sheet Metal Pattern Book Available

PATTERN LAYOUT for sheet metal fittings has always been a tedious and time-consuming job. Hugh B. Reid, American Artisan's pattern layout editor has spent innumerable hours developing an easier way to solve the variety of problems that a layout man encounters. I am pleased to announce that a new book on this important subject has been completed by Mr. Reid, entitled "Sheet Metal Layout Simplified, Volume III." This is the third book in the series and covers the triangulation method of layout.

The book is designed to approach difficult layout problems in such a manner that the text can be used for classroom instruction, home study courses or for shop reference. Sample problems are used as examples and their solutions are explained in step-by-step procedures.

The two other books written by Mr. Reid, "Sheet Metal Layout Simplified, Volumes I and II," explain



the editor's notebook

the straight line, radial line and parallel line methods of pattern development. All three books are designed to help the layout man produce the maximum amount of work in minimum time.

I wish to take this opportunity to congratulate Mr. Reid on a job well done. Those wishing to obtain copies of the layout pattern books may contact Mr. Reid at 141-89 Marion Ave., Detroit 39, Mich.

Expect \$600 Billion Gross Product Sales

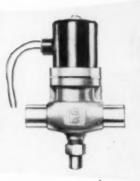
OUR NATION'S gross product sales are headed upward and are expected to reach \$600 billion annually by 1965, according to market surveys conducted by the Chamber of Commerce of the United States. This volume of business is expected to test the sales skills of the local distributors. Much of the money to be spent will be diverted to those industries that aggressively seek out the consumer's dollar by playing up the "advantages" of the products they offer over those of manufacturers in other fields.

This places a challenge on each member of the warm air heating and summer air conditioning industry. We've the best products available for the amount of money spent. It's up to us to keep the public informed at the local level so that its dollars can be directed toward providing comfort all year around. Manufacturers, wholesalers and dealer-contractors will stand to profit by playing up the advantage our products have over all of the "gimmicks" offered by other industries.

Clyde M. Barnes
EDITOR

AMERICAN ARTISAN, APRIL 1958

Model 274
— Orifice 1";
Connections 1 ½" N.P.T.;
1 ½" and 1 ½" O.D.F.,
1 ¾" and 1 ½" O.D.M.





Model 273
— Orifice ¾";
Connections 1" N.P.T.,
1 ½" O.D.F. and
1 ¾" O.D.M.

Model 272

— Orifice ¹½″;

Connections ³¼″ N.P.T.,

⁷%″ O.D.F. and

1 ½″ O.D.M.





Model 271
— Orifice 1½";
Connections ¾" and 1½" N.P.T., %" O.D.F., %" O.D.F.,

Step right up for a closer look!

4 New Solenoid Valves

Now you can choose from a complete line of dependable models to satisfy any solenoid application in the refrigeration field

Available in a full range of orifice and connection sizes with capacities up to 60 tons, these versatile solenoid valves are designed for both liquid and suction line refrigerant (for Refrigerants 500, 40, 12 and 22) plus hot gas defrost installations and for controlling water-flow.

Cast bronze construction...moisture proof coil... easy inspection of internal parts after installation. Pilot operation gives increased capacity. Valves are over-powered to lift against rated maximum operating pressure differential at 85% of rated voltage. Available with pipe thread connections or you can solder these compact valves into lines quickly and easily, even in difficult positions. Manufactured in accordance with Underwriters' Laboratory Specifications.

These new solenoid valves complement the largest and most complete lines of expansion valves, water regulating valves, pressure regulating valves, filters and driers supplied by any one manufacturer in the industry.



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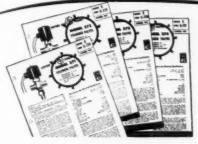




MODEL 73 — Use with refrigerants, air, water and oil. Available in 3 crifice sizes and 4 body sizes.



MODEL 67 — Available in 2 types. Metal-to-metal seat and soft resilent seat. 3/32st orifice.



Write for engineering bulletins

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USE REPUBLIC HOUSE-LONG GUTTERS



New Republic Galvanized Steel Gutters are now made in any length up to 32 feet. Hang them in one piece, cut your installation time in half. No need to measure, cut and solder as with "old style" short gutters. And, you hang a good-looking job. There are no seams to detract from appearance or to become potential points of failure.

The uniform zinc coating is extremely tight, stays that way throughout all forming operations. It provides years of dependable protection. Republic's precision manufacturing and up-to-date equipment make this new style "K" the straightest gutter on the market. With Republic mitres, and other fittings you get an exact fit on every installation.

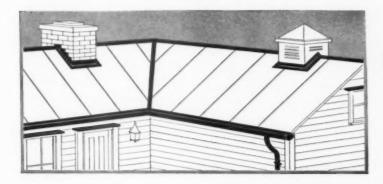
Cut installation costs and boost profits with Republic house-long gutters. They are made by Republic's Berger Division, veteran of more than 70 years in the manufacture of roof drainage products. Ask your sheet metal distributor or send coupon for facts.



HIGHEST QUALITY ZINC PROTECTION is a mark of all Republic Galvanized Drainage Products. You get the same tight uniform coating in Republic Continuous Galvanized Sheets. They provide dependable corrosion resistance at rock bottom initial cost. The zinc coating won't crack, flake or peel under any forming operation permitted by the base metal. Republic Continuous Galvanized is ideal for ductwork and countless more commercial, industrial and residential applications. See your distributor or send coupon.

REPUBLIC ENDURO® TYPE 301 (17-7) CHROME-NICKEL STAINLESS STEEL makes the longest-lasting rain-carrying system ever! Stainless Steel resists rust and corrosion. It is extremely strong, able to stand up under the heaviest loads of ice and snow. It can't stain and discolor siding. It is easy to install without special equipment. Once in place, with practically no maintenance, it's good for the life of the house. And, the quality of a 17-7 Stainless Steel installation pays you a nice profit. Republic's Berger Division makes a complete line of Stainless Steel gutters, eaves trough, conductor pipe and accessories. See your distributor or send coupon.





REPUBLIC ROOPING TERNES save dollars in ultimate cost for roofing, flashing, valleys, ridge rolls, gutters and downspouts. Republic's Berger Division makes a full line. Terne plate is economical to maintain. Its tight, lead-tin coating is extremely corrosion-resistant—remains undamaged by any conventional forming operationprovides lifetime protection with occasional painting. See your distributor or send coupon.

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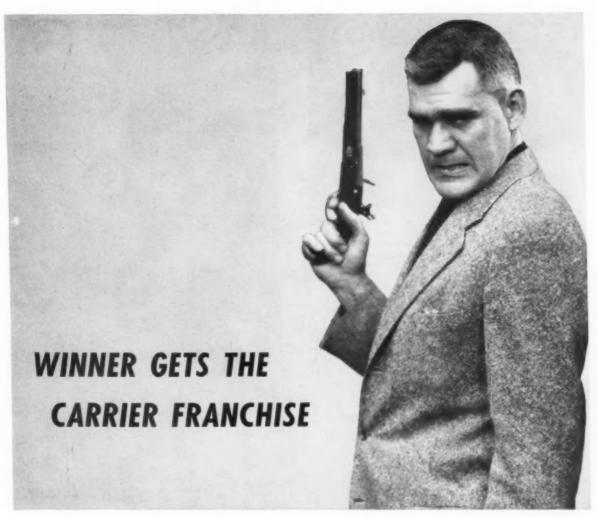
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Roofing Ternes

Drainage Products

Company___

Address



A multi-million-dollar research program brings an unending parade of exciting new products to the Carrier dealer

THIS MONTH CARRIER INTRODUCES

A GAS-FIRED FURNACE

THE NEW WINTER WEATHERMAKER



Why the Carrier franchise is the most valued in the industry



- 1. A Carrier dealer gets engineering help from his distributor on difficult jobs.
- A Carrier dealer receives continuous training in the most modern techniques for engineering, selling, installing and servicing.
- A Carrier dealer can obtain expert management consultation on any phase of his business operation.
- 4. A Carrier dealer doesn't have to tie up his own capital in inventory.
- A Carrier dealer is protected against price reductions on unsold inventory at all times.
- 6. A Carrier dealer enjoys the most liberal product warranties in the business.
- 7. A Carrier dealer gets sales support from the Carrier National Buyer Organization. This team sells national firms who require air conditioning installations in the dealer's town, turns the order over to the dealer.
- 8. A Carrier dealer is backed with hard-selling advertising support. Heavy national magazine and key-market newspaper advertising sell the Carrier dealer as the man who knows air conditioning best. Liberal co-op policy, sales promotion material, let him tie in effectively at the local level.
- A Carrier dealer enjoys unequaled prestige
 his products are well-known and respected.

 The Carrier dealer is Mr. Air Conditioning wherever he's located.
- 10. The largest selection of air conditioning equipment on the market. If it can be air conditioned, Carrier dealers have what it takes!

WHAT'S IT LIKE?

Burns natural, mixed or LP gases. Upflow and downflow models. Capacities from 80,000 to 160,000 Btu/hr input. Installs easily in utility room or closet near living areas. Extremely quiet because new CARRIER FLOATING BLOWER MOUNT suspends motor and blower inside blower housing, eliminating vibrations. Complete line of matching plenums and cooling coils for summer cooling.

WHY IS IT BETTER?

The new Carrier Winter Weathermaker was designed from the ground up as a "Furnace with a Future"—for the efficient adding of summer cooling at a later date. Casing is amply wide for cooling air flow. Blower was selected to provide the cfm required for cooling. All models approved for .5" static pressure. Heat exchanger designed for minimum resistance to air flow. New fan and limit

switch location in air stream permits more exact control of air stream temperature. Cooling coil can be added with no change in blower assembly.

HOW IS IT A GOOD THING FOR THE CARRIER DEALER?

The new gas-fired Winter Weathermaker gives the Carrier dealer another good product for year-round selling. Extra duty performance makes it superior to competitive furnaces. Dealer can offer builders a Carrier-prepared promotion kit to help builder merchandise each home as "A Home with a Future." But above all, the new Carrier Winter Weathermaker is the "Furnace with a Future" for the dealer. You sell the Carrier furnace today to the builder. In the future the satisfied home owner returns to add Carrier Summer Cooling—more business for the Carrier dealer.



Interested in a Carrier franchise?

Talk it over with your Carrier distributor. You'll find his name in the Yellow Pages, Carrier Corporation, Syracuse, New York.



Erect more squares per daydo less welding-make more money

with Milcor Bonderized Deck

Here's steel roof deck designed with the contractor in mind. It's 24 inches wide—there's less welding to do. It comes as long as 28 feet 6 inches—covers faster. Die-set ends fit together easily, quickly. Ribs ¾ inch wide enable a man to weld from the top, eliminating the need for

costly fillet welding alongside each sheet as it is laid.

That's not all. Milcor's Bonderized, baked-enamel prime finish resists onthe-job damage — puts an end to many paint complaints.

Get all the facts. Write for catalog 240.

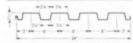
MILCOR Steel Roof Deck

INLAND STEEL PRODUCTS COMPANY Member of the TILAND Steel Family DEPT. D. 4023 WEST BURNHAM STREET . MILWAUKEE 1, WISCONSIN

ATLANTA . BALTIMORE . BUFFALO . CHICAGO . CINCINNATI . CLEVELAND . DALLAS . DENVER . DETROIT KANSAS CITY . LOS ANGELES . MILWAUKEE . MINNEAPOLIS . NEW ORLEANS . NEW YORK . ST. LOUIS.



"A" Section - The standard of the



"B" Section — Wide rib distributes metal for greater structural efficiency — gives higher section properties per pound of steel.



"C" Section — Carries normal roof loads over spans up to 20 feet.

Ohio Association Awards Plaque to American Artisan

Toledo — The staff of American Artisan was honored by the Ohio Sheet Metal Contractors Association at the group's annual banquet, when a bronze plaque was presented to American Artisan's editor, Clyde M. Barnes. The inscription on the plaque reads: Presented to American Artisan by the Ohio Sheet Metal Contractors Association to express their appreciation for its constant regard for the association's welfare.

In accepting the plaque Mr. Barnes said, "This is a wonderful compliment. On behalf of the American Artisan staff I thank you.

"Anything we've been able to do has been easy because of the excellent examples this association's membership has set for the industry it represents. We've only reported your achievements."

Solar Heating Advances To Be Reviewed by BRI

Washington, D. C. — Newest advances in solar heating for homes will be reviewed at the seventh annual meeting of the Building Research Institute, to be held at the Shoreham Hotel, Washington, April 21-23. John I. Yellott, executive director of the Association for Applied Solar Energy, will report results of a 10 year research study on solar energy and will describe a test home recently constructed in Phoenix, Ariz., which will be both heated and cooled by solar energy.

Another solar house has recently been completed in Lexington, Mass. by the Massachusetts Institute of Technology. The house will be sold to a private family, but M.I.T. engineers will retain separate access to a basement equipment and instrument room to gather data on the performance of the solar heating system under actual living conditions.

Metal Fabricating Manual Ready for SMACNA Meeting

ELGIN, ILL. — The Sheet Metal and Air Conditioning Contractors' National Association has scheduled its annual convention for May 8-10 at the Eden Roc Hotel, Miami Beach. The three day convention program will be preceded by two days of special committee meetings.

Scheduled for presentation at the convention is a sheet metal fabricating manual that has been in preparation since 1954, when SMACNA formed a steering committee to assemble and publish a manual of recommended duct construction practices. Because of the many varied but related subjects, the original plans of the committee were enlarged to include practices other than those directly related to duct construction.

The committee consists of seven nationally known sheet metal contractors and approximately 30 additional advisers who represent all segments of the sheet metal industry and all parts of the country. Thus the recommendations presented in the manual are designed to become standard procedures for shops anywhere in the United States and Canada.

The manual is not an engineering treatise; its contents are restricted to methods of fabricating and erecting ducts. The manual includes information on new materials used for duct construction. There are 52 pages of isometric drawings, each with an accompanying page of text to explain the details shown in the drawings.

The committee chairman, who will present the manual, is Angelo Hoffmann, Milwaukee. Other members of this committee are Lawrence Paul and Harold Stevens, Chicago; Paul Stromberg, Washington, D. C.; Charles H. Johnson, East Moline, Ill.; John Creegan, Hawthorne, N. J.; and Dion E. Mannen, Cleveland.

Also to be presented at the convention are the fourth edition of the association's warm air heating code and a report on the localities now using this code, either in its entirety or partially.

Other activities scheduled include:
A Warm Air Heating and Air Con-

A Warm Air Heating and Air Conditioning Forum, which will be opened with a discussion of "What SMACNA Offers Warm Air Dealer-Contractors." Following will be a report on the association's Certified Program and how it can help dealer-contractors upgrade their sales.

An Industrial Ventilation Forum will cover "The Possibilities and Problems of Industrial Ventilation" in various applications such as automobile and body plants, foundries, wood working and food processing plants, and grain elevators.

An Architectural Sheet Metal and Built-up Roofing Forum will feature a session on stainless steel curtain walls which will be illustrated with slides.

A Production Fabricators Forum will cover the Sheet Metal Workers International Association's program to organize fabricators.

A Ventilating and Air Conditioning Forum will feature discussions on "Chicago's New Ventilating Code," and "Plastics in Fans, Scrubbers, Tanks, etc." High pressure systems will also be discussed during this forum with subjects such as noise control, balancing air flow and estimating being covered.

The Labor Relations Forum will deal with inter-union agreements, joint labor committee activities, fringe benefit developments, vacation plans, and AFL-CIO lines of jurisdiction.

Recreational activities have not been overlooked, and visitors will enjoy the inland waterway cruise and water show.

(More news on page 22)



Yessir, I'm a nudist myself, but I'm sure YOU will enjoy wearing my merchandise.

AMERICAN-Standard USE-IT-YOURSELF OFFER

It's hard to sell a product you don't use yourself especially when the customer knows that you don't. Yet some air conditioning dealers are still living in non-air-conditioned homes . . . and conduct business from non-air-conditioned shops and showrooms.

To eliminate this sales handicap, American-Standard Air Conditioning Division presents a new and unique Use-It-Yourself Air Conditioning Offer. This offer enables you to install full-scale air conditioning in your home or place of business—with a top quality water-cooled unit—at a low cost you would hardly have believed possible. We've gone all out to make the deal irresistible because we know that when your friends, neighbors or customers actually see and feel the benefits your system produces, they too will want air conditioning. As the Du Pont Survey pointed out, neighbors of central air conditioning users are the best source of additional sales by a ratio of more than 3 to 1!

Nothing sells air conditioning like air conditioning itself. So *Use-It-Yourself* and watch your sales grow.



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Please furnish full details on the Use-It-Yourself Offer featuring water-cooled equipment.

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Street.....

City_____State___

TODAY'S OF RESIDENTIAL AND

113 models and sizes, including



MOST COMPLETE LINE

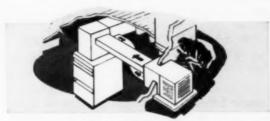
LIGHT COMMERCIAL AIR CONDITIONERS

water-cooled models as well as the air-cooled units shown here

AIR-COOLED PACKAGE SYSTEMS



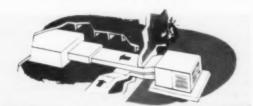
The American-Standard twin-compressor package unit delivers *continuous* air circulation and dehumidification for 24-hour-a-day comfort. Available in 2 and 3½ hp sizes. Refrigerant circuit is covered by 5-Year Protection Plan. The American-Standard low cost pre-fabricated duct system, furnished as optional equipment, speeds installation, increases your profit.



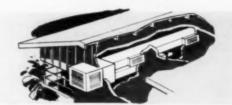
Basement application



Gable roof-attic installation



Crawl space adaptation



Central hallway installation



Commercial flat-roof installation

Contact your American-Standard* Air Conditioning Division Distributor

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AMERICAN-Standard

AIR CONDITIONING DIVISION

AMERICAN ARTISAN, APRIL 1958

AGA Predicts Bright Future For Gas Air Conditioning

NEW YORK CITY — Air conditioning today looms as one of the greatest load potentials in the history of the gas industry, according to the American Gas Association. Announcing a how-to-do-it booklet entitled "Steps to Success," AGA said the new publication provides utility companies with detailed plans of action for launching and conducting air conditioning programs.

"Never have the prospects for gas air conditioning looked so bright," said C. S. Stackpole, AGA managing director. "The gas industry stands on the threshold of the development of a market and load that will be the most profitable in its history."

Study Effect of Shades On Heat Transmission

CLEVELAND - Details of a research program on heat transfer through windows shaded by roller shades, sponsored by the American Society of Heating & Air-Conditioning Engineers, were discussed recently at a meeting held at the society research laboratory in Cleveland. Attending the meeting were members of the ASHAE technical advisory committee on heat transfer through fenestration, representatives of shade cloth manufacturers, and ASHAE research laboratory staff personnel. The manufacturers recommended types of shades which should be evaluated and suggested ways in which the shades should be mounted. It was agreed that roller shades of opaque, translucent and metallic types would cover adequately the variables which are important in the study of heat transmission. Discussion of the effect the color of a shade has on heat gain when solar radiation falls upon it, particularly during summer months, resulted in the selection of white and dark green shades for the study.

Mr. Stackpole said that central air

conditioning sales in the United States are expected to reach 220,000 units this year. "With an aggressive sales program," he pointed out, "the gas industry can get a major share of this highly profitable load."

The booklet presents newly available statistics on gas air conditioning, including the total number of residential, commercial and industrial gas installations to date, and the industry's total sales for 1957.

Building Outlook Good, Mason Says

ATLANTIC CITY, N. J. — A bright outlook for the building industry in the coming year is seen by Commissioner Norman P. Mason of the Federal Housing Administration. Speaking recently in Atlantic City to a convention of home improvement contractors, Mr. Mason said that conditions are favorable for a continued upward trend in the volume of home construction and home improvement. "People are not hesitating to build or buy homes," he said, "and lenders are ready to finance transactions."

Discuss Insurance for Conventional Lenders

Washington, D. C. — The Federal Housing Administration is considering the advisability of a new program which would provide conventional lenders with insurance of the top 25 percent of the loans which they make, according to FHA Commissioner Norman P. Mason. Mr. Mason said that the plan would be "an uncomplicated procedure, with lenders making the appraisals and handling the other steps involved in setting up home loans. Through coinsurance with FHA under this plan. lenders would carry a part of the risk.35

NWAHACA Reports 1957 Furnace Shipments, Inventory Carry-Over

CLEVELAND — For the fifth consecutive year, furnace shipments exceeded the million mark. Total sales for both forced air and gravity furnaces totaled 1,067,540 for the year ending December 31, 1957.

There were 1,006,962 forced air units sold and 60,578 gravity units. Broken down into fuels used, there were: 674,838 gas-fired forced air units; 320,404 oil-fired forced air units; 11,720 coal-fired forced air units; 30,077 gas-fired gravity units; 3234 oil-fired gravity units; and 27,271 coal-fired gravity units.

Furnaces on hand at the manufacturing level totaled 164,029 units at the end of the year. This was about 15 percent lower than the inventory carry-over at the end of 1956, which was 192,376 units. Sales in 1956 amounted to 77,695 gravity units and 1,184,711 forced air units, making a total of 1,262,406.

Sees Need for New Housing Legislation

Washington, D. C. — In a recent interview with members of the National Association of Home Builders, Representative Albert Rains (D-Ala.) pointed to the need for new housing legislation "which would enable home builders to construct and recondition 2,000,000 homes a year."

Representative Rains, chairman of the Housing Banking and Currency Subcommittee on Housing, said: "I think the people in the Administration and the people generally ought to understand that the housing demand has not been met, and there is still a great market and likely will continue to be. We ought to have at least 1,400,000 units a year of new construction and another 600,000 should be provided for by reconditioning of existing housing."

(More news on page 27)



AN OUTSTANDING PROFIT OPPORTUNITY WITH EVERY

Heating...Cooling... Air Conditioning Unit

Examine any Luxaire Furnace or Air Conditioner. Every unit has Luxaire's unique combination of heavy construction and uncomplicated design - qualities that have established Luxaire's enviable reputation for excellent, trouble-free performance - qualities that can command high prices!

But advanced manufacturing methods, with resulting production savings, permit Luxaire Units to be priced more than competitively. In fact, the outstanding success of Luxaire's complete new line of factoryassembled-and-wired Gas and Oil Furnaces has made possible recent price reductions for the most popular sizes and models!

Now, with Luxaire, you can make extra money from replacement installations. while enjoying a real price advantage in competitive bidding!

See your Luxaire jobber, today!

NOW...LOWER IN PRICE!

Winter Air Conditioning Units and Counterflow Units . Gas Fired - 75,000, 100,000, 125,000 and 150,000 Btu Input . . . Oil Fired - 78,400 and 112,000 Btu Output! Factory assembled and wired! 16 and 14 Gauge Heating Elements! 21 Gauge Cabinets! Compact! Attractive! Adaptable for Summer Air Conditioning!



Oil Winter

Conditioner

Refractory

Conditioner with Optional Accessory Return Air Cabinet

Winter Air

Conditioner with Plenum Type Cooling Coil.



The New T855A Indoor Thermostat features an outdoor reset heater that responds to the reset signal from Outdoor Thermostat. In addition the T855A offers all of the other features of the famous Honeywell Round-decorator cover, dust-proof mercury switch, adjustable heater to match primary control.

For automatic night set back the new T856 Electric Clock Thermostat may be substituted in this new Indoor Outdoor Control System.





The New T846A is mounted outdoors to sense weather conditions. When the outside temperature drops below 55°F, this thermostat automatically resets the indoor thermostat upward according to outdoor temperature, wind (and sun on zone control applications). This new Indoor Outdoor Control System is simple to install and wire; uses same basic hook-up as ordinary Series 80, two wire control system.

H/M

First Residential Indoor/Outdoor Temperature Control System at a popular price that automatically resets indoor temperature according to outdoor weather changes. Responds to outdoor temperature, wind (and sun on zone control applications). It's new and better—out of Honeywell's research and engineering facilities, bringing you new controls to make your business more profitable. What's more, Honeywell's systems-and-service way of doing business backs you up 100 percent, at no cost to you. You get reliability; easier installations; simplified inventories; fast help when and where you need it, from 112 sales-service offices; educational programs for your staff—and above all, far fewer costly call-backs. Added up, these benefits mean more profit from every job when your units have all-Honeywell controls. Ask your Honeywell man to prove it.

For information and new popular prices on Honeywell's Indoor/Outdoor Control System for heating and cooling, call your local Honeywell office. Or write Minneapolis-Honeywell, Dept. AA-4-21, Minneapolis S, Minnesota. Honeywell



First in Controls



Here is a product that brings me

FULL PROFITS as well as EXTRA SALES

Are you tired of swapping dollars?

Believe me, the Electro-Klean Electronic Home Air Filter opens up a new field of profit for heating and airconditioning dealers. With a Retail Price as low as \$189, now every home becomes a prospect for amazing electronic filtration. And because Electro-Klean is so new . . so newsmaking in that "homes now house-clean themselves" . . . you do not have to cut prices one cent! You enjoy a full profit on every Electro-Klean unit!

Now consider those extra sales, too. Suppose a customer comes in to buy a central air-conditioning system. It's easy to build up the sale with a low-cost Electro-Klean unit. That goes for forced-air furnace prospects, too. Pacesetting Electro-Klean assures you of full profits while you clinch those extra sales!

Ask your distributor about this profit-packed, salesproducing story today. Or, use the coupon below for all the interesting details.

Get the **FULL PROFIT** story

merican Air Filter COMPANY, INC.

ZONE

355 Central Ave., Louisville 8, Ky.

Send me details of the complete promotion plan for Electro-Klean, descriptions, photos and prices.

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ADDRESS

a product of the world's largest manufacturer of air filters

What are you waiting for?



Milwaukee Sheet Metal Workers Get Pension

MILWAUKEE, WIS. — Employers of journeymen sheet metal workers in Milwaukee have made it possible, through a pension plan, for loyal employees to retire after the age of 65. The first pension check was issued March 11 to Julius Klatt, 69, who had worked for Biersach and Niedermeyer Co. for 45 years. Mr. Klatt in-



JULIUS KLATT receives the first pension check issued to a Milwaukee journeyman sheet metal worker under new program. Business agent of local 24 John F. Klatt, brother of the first pensioner, makes the presentation. At left is employer, Roland Biersach

tends to spend his free time being an enthusiastic supporter of the Milwaukee Braves baseball team and doing some fishing.

Presenting the first pension check was a committee of sheet metal contractors and representatives of local 24, Sheet Metal Workers' International Association.

Sees Growing Market For Copper and Brass

NEW YORK CITY — The market for copper and brass products will increase with the expected rise in residential building and home modernization, according to T. E. Veltfort, managing director, Copper & Brass Research Association. Both fields are major markets for copper and brass in such applications as flashing, downspouts and gutters.

University of Illinois Gets Grant For Study of Home Temperatures

URBANA-CHAMPAIGN, ILL. — The Owens-Corning Fiberglas Corp. has given the University of Illinois a \$25,000 grant for a study of "what is known and what is ahead" in year 'round comfortable temperatures for American homes. The study will be carried out by the university's Small Homes Council in cooperation with the department of mechanical engineering and department of economics. Professor S. Konzo, mechanical engineering department, will be project supervisor.

Rudard A. Jones, director of the Small Homes Council, explained that the purpose of the study is to take a "look ahead" and make reasonable conjectures concerning future needs relating to comfort in residences. The

Schedule Five 1958 Apprentice Conferences

Washington, D. C. — Field representatives of the U. S. Department of Labor's Bureau of Apprenticeship and Training as well as representatives of state apprenticeship agencies are assisting in arranging five apprenticeship conferences to be held during 1958. Scheduled are:

The Minnesota State Apprenticeship Conference, May 1-2, St. Paul

The Eastern Seaboard Apprenticeship Conference, June 23-26, Groton, Conn.

The Southern States Apprenticeship Conference, July 10-12, Little Rock, Ark.

The National Railroad Apprenticeship Conference, July 16-18, St. Louis, Mo.

The Ohio Apprenticeship Conference, Sept. 8-10, Cleveland.

The Middle Atlantic States Apprenticeship and Training Conference, a biennial meeting, will be held in Wilmington, Del., July 13-16, 1959.

forecasts will be based on past experience, present practices, and predictable developments. The study and correlation of information will include both heating and cooling. Specific recommendations concerning design construction methods and insulation standards are expected to be developed from the study.

OHI Works on Oil Heat Installation Standards

NEW YORK CITY - The Oil-Heat Institute is working on a set of standards for the installation of residential oil-fired central heating equipment. John Olson, Nu-Way Corp., chairman of the committee for formulating the proposed installation standards, has forwarded copies of the pre-publication draft to various institute members for suggestions and criticism. As soon as their comments have been reviewed by the committee, the final draft of the standards will be printed and the project turned over to the Distribution Div. for administration and action. OHI proposes to use the standards in its national installation certificate program under which installations complying with the requirements set up in the standards will be awarded an OHI seal or certificate of approval.

U.S. Chamber Predicts Second Half Pickup

Washington, D. C. — The opinion that expansive forces will get underway in the second half of the year still seems reasonable, according to United States Chamber of Commerce economists. "Minor economic fluctuations, such as the present one, are inherent in a dynamic economy," the chamber says. "They permit the freedom of action which assures flexibility, adaptability and growth."

Tew by

ere's today's MOST ADVANCED DIFFUSER ... AT A TRULY COMPETITIVE PRICE.
Actually obsoletes all others in APPEARANCE ... DESIGN ... PERFORMANCE!

Because it's FULLY ADJUSTABLE... the new Titus MODEL P-125 diffuser provides the proper throw and spread for obtaining maximum diffusion efficiency in BOTH HEATING AND COOLING. It's today's first diffuser so advanced in design it can deliver THE NECESSARY AIR PATTERNS TO ASSURE MAXIMUM PERFORMANCE FROM MODERN AIR CONDITIONING SYSTEMS.

Years ahead in looks, too! New distinctive, swept-line styling blends beautifully with any surroundings. Built rugged . . . for lasting comfort and satisfaction. A REAL MONEY SAVER . . . because it's easier, quicker to install . . . eliminates call-backs.

ALSO AVAILABLE IN NEW ECONOMY MODEL P-75

The same superb styling...the same basic ADVANCED design as Titus Model P-125 except does not have dual adjustable feature. Handles cool or warm air with equal efficiency. Keeps uniform temperatures throughout the room...eliminates low level stratification.

THE NEW MODEL P-75 DIFFUSERS CAN

GIVE YOU THE CON-TRACT AGAINST

ALL KINDS OF PRICE CUT BIDDING BE-CAUSE THEY CAN HANDLE MORE AIR PER UNIT COST. They look better, are constructed better and absolutely outperform competition. WRITE FOR DETAILS.

INDUSTRY'S FIRST

ADJUSTABLE FOR HEATING

ADJUSTABLE FOR COOLING

perimeter diffuser



FINGERTIP ADJUSTMENT for heating or cooling. Simply push control to desired setting.

SWEPT-LINE STYLING. Lower, narrower, more streamlined sithouette. Today's most beautiful diffuser.

ADJUSTABLE BASE for easier, cheaper installation. Allows camplete flexibility of boot location.

Venl

BUILT-IN DAMPER ... handy, fingertip volume control from side of diffuser. Damper adjusts from full appen to full chased within diffuser, facilities store.

New

BIG FREE AREA.., greater than any other diffuser of comparable size. Capacity to spare for BOTH HEATING AND COOLING.

FREE CATALOG MAIL COUPON TODAY

TITUS MFG. CORP., WATERLOO, IOWA

- Rush me FREE CATALOG with complete details on the NEW TITUS "Adjustable-for-heating, Adjustable-for-cooling" PERIMETER DIFFUSERS.
- Send name of nearest jobber.

NAME

COMPANY

ADDRESS

CITY

STATE

(Continued from page 27)

Western Convention Accent on School, Home Conditioning

Los Angeles — The Western Air Conditioning Industries Association has completed its program of technical sessions to be held in conjunction with the Air Conditioning, Heating, Ventilating and Refrigeration Exhibit at the Shrine Exposition Hall in Los Angeles, May 7-11.

The general technical sessions will include presentations on "Results of Studies on Air Pollution," by Dr. Alexander Goetz, California Institute of Technology; "Air Conditioning Existing Residences," by George Frymeyer, Day & Night Mfg. Co.; and "Residential Heat Pumps," by James Kercheval, General Air Conditioning Corp.

Frank M. Neal, Minneapolis-Honeywell Regulator Co. will moderate a symposium on School House Environmental Control. The subject of "Heating, Ventilating and Cooling Systems" will be covered in a paper presented by Russell C. Taylor, American Air Filter Inc.

A symposium on Air Cleaning with Reference to Particle Size. Filter Testing and Smog Control will be moderated by Professor Norman Sharpe of California State Polytechnic College. Individual subjects will be covered by a panel consisting of Sydney F. Duncan, Farr Co.; H. L. Barnebey, Barnebey-Cheney Co.; J. S. Earhart, Preferred Equipment, Inc.; James W. May, American Air Filter Co.; and Paul W. Aitkenhead, Electro-Air Cleaner Co., Inc.

A session on Codes and Standards will be moderated by Herbert Nottage, Lockheed Aircraft, Inc.

Sees Conditioning Of New Homes As 'Standard Practice'

NEW YORK CITY - "Within the foreseeable future - the next five to seven years - the residential air conditioning market is going to change considerably. It will then be standard practice to air condition new homes." This prediction was made by D. C. Minard, president of The Trane Co. Mr. Minard, speaking before the New York Security Analysts, said that the market "is due to increase substantially. We have a market provided by a million residential starts a year to serve first mainly for heating and a little later for both heating and summer air conditioning." Existing homes, Mr. Minard noted, will provide an additional market for summer air conditioning.

(More news on page 34)

DIECKMANN ONE PIECE CONDUCTOR ELBOWS AND SHOES

SQUARE CORRUGATED ELBOWS AND SHOES, STYLE "A" (ORDINARY CURVE)
No.000 - 10° No.00 - 20° No.0 - 30° No.1 - 45° No.2 - 60° No.3 - 75° No.4 - 90° No.3 - 75° SHO

111111111

SQUARE CORRUGATED ELBOWS AND SHOES, STYLE "B" (SIDE CURVE)
No. 000 - 10° No. 00 - 20° No. 0 - 30° No. 1 - 45° No. 2 - 60° No. 3 - 75° No. 4 - 90° No. 3 - 75° SHO



ROUND CORRUGATED ELBOWS AND SHOES
No. 000 - 10° No. 00 - 20° No. 0 - 30° No. 1 - 45° No. 2 - 60° No. 3 - 75° No. 4 - 90° No. 3 - 75° SHC

PLAIN ROUND ELBOWS AND SHOES
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This Emblem of Quality and Gauge of Material is Stamped in each Elbow and Shoe.

TRADE F. Dieckmamn, MARK

Our complete line is available in 28, 26, 24 Gauge Galvanized Steel, Copper Bearing Steel, Armco Ingot Iron, all Hot-Dipped—Galvanized after formation. Stainless Steel, 1X 40# Terne, Copper, Lead Coated Copper, Zinc, Aluminum, Mill or Embossed Finish. Bonderized-Galvanized Elbows and Shoes, ready for painting. ORDER ANGLE BY NUMBER OR DEGREE.

FREE Wall Chart—Illustrated 21" x 27" describes complete line ... write for Your Copy.

THE FERDINAND DIECKMANN CO.

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100,000 lbs. OF COPPER

protect the NEW U.S. SENATE OFFICE BLDG.

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Hussey Copper Building Products

- · Copper Sheet Metal
- . Rolled Copper Flashing
- · Copper Eave Troughs
- Roof Drainage Accessories
- Majestic 3-way Thru Wall Copper Flashing
- . Copper Ridge Roll
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- e Conner Nails



Sheet metal work by Overly Manufacturing Co., Greensburg, Pa.

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Copper has not earned its world famous reputation for superior lasting qualities and maintenance-freedom without reason. It's been proven through centuries of use as a building product without peers for many applications. Today more than ever Hussey Copper is being specified by architects and builders who realize the long range economy of lifetime service without continuous maintenance or replacement. Where only top-quality copper will suffice, Hussey Copper gets the nod.

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7 Convenient Warehouses to serve you promptly

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Trane announces a new warm air furnaces and



line of residential cooling equipment!

Matched heating and cooling units now in production at new, modern factory!

Trane, leader in big building air conditioning systems, now brings you a residential line of furnaces and furnace type air conditioners. Units are matched to provide living weather magic in any climate, in any season!

The new Trane residential equipment is being produced in a factory especially designed and equipped for this purpose—according to the same high standards that have made Trane a leader in air conditioning big buildings.

Now, for the first time, you can give your residential customers the same TRANE engineering . . . design . . . manufacturing excellence that is found in

big systems. Trane, skilled in all four related fields of heating, cooling, ventilating and heat transfer, has created heating and cooling units for the home in the same tradition that has made the name Trane well-known among leading architects, engineers and contractors.

And this equipment—like all Trane products—is backed by constant research and testing in Trane's famous laboratory—"The House of Weather Magic."

WANT MORE FACTS? Get complete information

WANT MORE FACTS? Get complete information on the new Trane residential matched heating-cooling units from your nearby Trane Sales Office—or write Trane, La Crosse, Wisconsin.

For any air condition, turn to

TRANE

MANUFACTURING ENGINEERS OF AIR CONDITIONING, HEATING, VENTILATING AND HEAT TRANSFER EQUIPMENT

THE TRANE COMPANY, LA CROSSE WIS. . SCRANTON MFG, DIV. SCRANTON, PA. . CLARRSVILLE MFG. DIV., CLARRSVILLE, TENN. TRANE COMPANY OF CANADA, LTD., TORONTO . 86 U.S. AND 18 CANADIAN OFFICES

For Cooling Only! This cooling unit provides cool air delivery independent of heating system for any residential or small commercial building. Install in unused space or incorporate into duct system. Fan, coil and filter are housed in attractive, compact cabinet. 2, 3 and 5 ton models.

Air-Cooled Compressor and air-cooled condenser available in compact cabinet for outside installation. High capacity . . quiet operation . . small dimensions. Upblast discharge for freedom of location. 2, 3 and 5 ton models available—all with centrifugal fans.





Need for Tax Adjustment In Small Firms Urgent: SBA

Washington, D. C. — Tax adjustment for small businesses is urgently needed, according to SBA Administrator Wendell B. Barnes. Mr. Barnes pointed out that while general tax reduction is not now in the administration's plans, since national defense needs have top priority, adjustments can be made in the revenue act, which would be of very definite assistance to small businesses. "Such adjustments would not be too costly to the government in revenue and their value to the businesses affected would be many times the actual loss in revenue." he said.

Mr. Barnes noted that President Eisenhower has proposed liberalization of present law so that original investors in small business firms would be allowed greater deductions in their income tax returns if their investments turn bad. Such an amendment, he said, "would encourage more people with funds to invest to buy securities in sound, attractive small firms with growth possibilities.

"Another example of possible equity for small firms is in the area of depreciation allowance. Small firms buy second hand and even third hand machines, equipment and facilities. By allowing these firms to write off depreciation on this used equipment on the same basis permitted purchasers of new machinery, fairness would be served and our national economy would benefit.

"Another amendment to the present law would give the taxpayer an option of paying estate taxes on closely held firms."

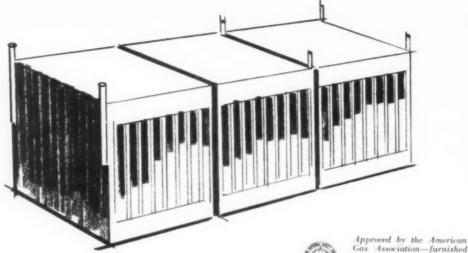
Record Nickel Supply For Civilian Use

NEW YORK CITY - More nickel will be available for civilian use in the United States in 1958 than ever before, according to Lars R. Larson, vice president and general sales manager of the International Nickel Co., Inc. Mr. Larson pointed out that the total 1957 supply of 305,000,000 lb to the United States was the largest that has ever been available in the history of the nickel business. "The government has announced the desire for complete stockpile diversion in 1958," he said, "which will mean another all time high for civilian nickel in the United States. In 1961. it is expected that the free world will have available between 650,000,000 and 675,000,000 lb of nickel annually. The government's goal is an availability of 440,000,000 lb of nickel (45 percent more than in 1957) for the United States.









Here now from Janitrol is a really versatile duct furnace . . . the revolutionary new Janitrol Series DUCT 75, bringing you new flexibility in heating system design and installation for all your commercial-industrial jobs.

These compact, easily-installed, "packaged" furnaces are furnished in unit capacities of 200,000 and 300,000 btu/hr, input. You can install them singly, or side-by-side in batteries of two or more to provide inputs from 200,000 to 2,000,000 btu or more in increments of 100,000 btu/hr. input, with individual controls for each unit.

New advanced design of the DUCT 75 provides for draft hood relief at front, and combustion air inlets at both front and back of each unit. Thus a number of units can be bolted together with sides in contact. This results in an assembly so rigid that the two supports at each end of the two-unit assemblies provide adequate support. (See fig. 1.) Pipe hangers designed to serve as connections for overhead suspension are reversible to form floor support legs. The threaded ends used for attaching to overhead supports accommodate pipe leg extensions for floor mounting.

The heat exchanger assembly in Janitrol DUCT furnaces are practically indestructible. The exclusive Multi-Thermex heating element assembly is internally and externally armored with a fire-fused protective coating to assure a tight, non-scaling heat exchanger that is resistant to corrosion and superior to either cast iron or conventional steel. This design has been thoroughly proved in over 1/2 million tubes used in the toughest commercial-industrial applications, over the past 10 years.

All in all, Janitrol's all-new Series DUCT 75 Furnaces provide heating-cooling system design flexibility and installation ease never before possible . . . enable you to "customize" commercial-industrial jobs to individual requirements at lowest possible cost. Get all the facts on these really versatile new furnaces from your Janitrol Representative.

NITROL SERIES DUCT 75

Standard Equipment

Limit Control

Gas Pressure Regulator

Pilot Shutoff Valve

Main Shutoff Valve

- **Armored Multi-Thermex Heat**
- Exchanger
- **Ampli-Fire Burners**
- Draft Hood Field-reversible
- **Automatic Recycling Pilot**
- Low Voltage Solenoid Gas Valve with Transformer (230v, 60c)
- Casing finished in blue-gray baked enamel
- Pipe Hangers—ceiling suspension—field reversible for floor mounting

Gas Association-furnished for operation on natural, manufactured, mixed, LP and natural-LP (dual-fuel)

The Complete Line of Janitrol Duct Heating Equipment



DUCT-75, the all-new Janitrol design described above. Two basic units combined for any job from 200,000 Btu hr., up to several million



DUCT-55, individual furnaces in attractive casings. Available in five sizes 100,000; 125,000; 175,000; and 225,000 Btu hr. inputs.



UNIT HEATERS, Model UCS, propellertype ceiling-suspended, provide the lowest initial cost automatic heating In 10 sizes, from 30,000 to 225,000 Btu hr. inputs.



BCC, Blower Unit Heaters for use independently of central systems. Available with enclosed or exposed blowers with 300,000; 400,000 and 500,000 Btu/hr. inputs



BLOWER PACKAGES designed for installation with minimum field assembly work. Series 75 has capacity range from 3,000 to 7,000 CFM; Series 135 has range from 6,000 to 13,500 CFM.

PRESSURE DROP (RESISTANCE) AND TEMPERATURE RISE AT VARIOUS FLOW RATES THROUGH SERIES DUCT-75

-			

							-						
CFM	1330	1500	1600	2000	2250	2400	2800	3000	3200	3400	3600	3800	4000
Resistance Inches Water	.043	.050	.059	.086	.105	.12	.155	.175	.20	.222	.240	.252	.290
Temp. Rise ° F.	112	100	90	75	66	63	53	50	47	45	42	39	37

SIZE 300

							91.61	- 400									
CFM	2000	2250	2400	2800	3000	3200	3400	3600	3800	4000	4200	4500	4800	5100	5400	5700	6000
Resistance Inches Water	.043	.050	.059	.076	.086	.096	.11	.12	.13	.145	.155	.175	.20	.222	.240	.252	.290
Temp. Rise ° F.	112	100	90	80	75	70	65	63	59	56	53	50	47	45	42	39	37

Performance Tables

WITH DIFFERENT MOTOR-DRIVE COMBINATIONS

SERIES 75

†Filter								ost	tatic Press	sure						
Pr. Drop Inches W.C.	*C.f.m. Delivery		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4
.040	3000						A-1/2	A-1/2	A-1/2	A-1/2	A-34	A-3/4	A-1/4	C-1	C-1	C-1
.05	3500						A-1/2	A-14	A-3/4	A-1/4	D-1	D-1	C-1	C-1	C-1	C-11/2
.07	4000					A-1/4	A-1/4	D-1	D-1	D-1	D-1	C-1	C-11/2	C-11/2	C-11/2	C-11/2
.08	4500				D-1	D-1	D-1	D-1	D-11/2	D-11/2	C-11/2	C-11/2	C-11/2	C-11/2	C-11/2	C-2
.10	5000			D-1	D-1	D-11/2	D-11/2	D-11/2	D-11/2	C-11/2	C-11/2	C-11/2	C-2	C-2	C-2	C-2
.13	5500		D-1½	D-11/2	D-11/2	D-1½	D-11/2	D-11/2	C-2	C-2	C-2	C-2	E-3	E-3	E-3	E-3
.15	6000	D-11/2	D-11/2	D-2	D-2	D-2	D-2	C-2	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3
.18	6500	D-2	D-2	D-2	F-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3		
.20	7000	F-3	F-3	F-3	£-3	E-3	E-3	E-3								
.23	7500	F-3	E-3	E-3												

SERIES 135

																	-
1Filter									OStatic F	Pressure							
Pr. Drop Inches W.C.	°C.f.m. Delivery	Free Delivery	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5
.06	6000						A-3/a	A-%	A-1/4	A-1/4	D-1	C-1	C-1	C-11/4	C-11/2	C-11/2	C-11/2
.07	6500						A-%	A-3/4	D-1	D-I	D-1	C-1	C-11/2	C-11/2	C-11/2	C-11/2	C-11/2
.08	7000					A-3/a	A-3k	D-1	D-1	D-1	D-1	C-1½	C-1½	C-11/2	C-11/2	C-2	C-2
.10	7500					D-1	D-1	D-1	D-1	D-11/2	C-11/2	C-11/2	C-11/2	C-11/2	C-2	C-2	C-2
.11	8000				D-1	D-1	D-1	D-11/2	D-11/2	D-11/2	C-11/2	C-11/2	C-2	C-2	C-2	C-2	C-2
.13	8500			D-1	D-1	D-11/2	D-11/2	D-11/2	D-11/5	C-1½	C-2	C-2	C-2	C-2	C-2	E-3	E-3
.14	9000			D-1	D-11/2	D-11/2	D-11/2	D-11/2	D-11/2	C-2	C-2	C-2	C-2	C-2	E-3	E-3	E-3
.16	9500		D-11/2	D-11/2	D-11/2	D-11/2	D-11/2	D-2	C-2	C-2	C-2	C-2	E-3	E-3	E-3	E-3	E-3
.17	10000	D-11/2	D-11/2	0-11/2	D-11/2	D-11/2	D-2	C-2	C-2	C-2	E-3	E-3	E-3	E-3	E-3	E-3	
.19	10500	D-1½	D-11/2	D-11/2	D-2	D-2	D-2	C-2	E-3	E-3	E-3	E-3	E-3	E-3	E-3		
.20	11000	D-11/2	D-2	D-2	D-2	0-2	C-2	E-3	E-3	E-3	E-3	E-3	E-3				
.23	11500	D-2	D-2	D-2	D-2	E-3	E-3	E-3	E-3	E-3	E-3						
.24	12000	D-2	D-2	E-3	E-3	E-3	E-3	E-3	E-3								
.27	12500	F-3	E-3	E-3	E-3	E-3	E-3										
.28	13000	E-3	E-3	E-3	E-3												
.30	13500	E-3	E-3														

Bold type indicates standard motor and drive.

FOR YOUR CONVENIENCE, SCALE TEMPLATES ARE PRINTED ON THE LAST PAGE



[†] Pressure drop through filters based on clean filters.

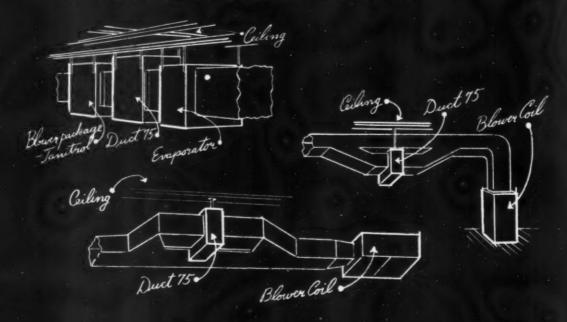
^{*} Standard Air.

O Static pressure of a system is the summation of all resistances including that of the duct system, heater, coils, etc.



Versatile-to the Nth degree! new JANITROL duct F furnaces

for commercial—industrial heating and ventilating and specially designed for use in year 'round systems.



Tem

88-55

10-23

75

			OUCT FURNACES	MAN SAN			
88-55	100-55	125-55	175-55	225-55	200-75	300-75	
		 ¢	TOP VIEW				
		<u> </u>	FRONT VIEW				_
			SIDE VIEW	<u> </u>			
ر ند مامده س	The state of		LOWER PACKAGE	S			
75	135		75	135	75	135	
	TOP VIEW		FRONT VIE	EW	SIDI	VIEW	

ANITROL

HEATING & AIR CONDITIONING DIVISION Surface Combustion Corporation, Columbus 16, Ohio In Canada: Moffats Ltd., Toronto



I've built customer confidence with



48 YEARS IN THE MANUFACTURE OF PRECISION PRODUCTS

The World's Finest FURNACES*

USE CAM-STAT CONTROLS

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THE PAYNE COMPANY La Puente, California



STEWART-WARNER CORPORATION Lebanon, Indiana



ANTHES-IMPERIAL CO., LTD. St. Catharines, Ont., Canada



PIONEER MANUFACTURING CO. Los Angeles, California

<u>LENNOX</u>

LENNOX INDUSTRIES INC. Marshalltown, lowa Columbus, Ohio Fort Worth, Texas Syracuse, New York Toronto, Ont., Canada



RHEEM MANUFACTURING CO. Chicago, Illinois New Castle, Delaware



CHRYSLER CORPORATION Airtemp Division Dayton, Ohio

WILLIAMSON HEATING & COOLING

THE WILLIAMSON COMPANY Cincinnati, Ohio



COLUMBIA SPECIALTY CO., INC. Chevy Chase, Maryland

BONAIR

BONAIR DIVISION Peerless Products Company Darby, Pennsylvania



BRYANT MANUFACTURING CO. Indianapolis, Indiana Tyler, Texas

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CUSTOM-AIRE PRODUCTS DIV. Pacific Industries, Inc. San Francisco, California



MORRISON STEEL PRODUCTS INC. Buffalo, New York



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FURNASMAN, LIMITED Winnipeg, Man. Canada



"HEAT MAKERS"

JOHN ZINK CO.
Tulsa, Oklahoma

.. The World's Finest WATER HEATERS*

450 CAM-STATS **

THERE'S NO DOUBT ABOUT IT...

"One picture is worth a thousand words"

We have known for years that we were furnishing more fan and limit controls for integral mounting on forced air furnaces than all of our competition combined. It was natural that some people in the industry might find this hard to believe but "one picture is worth a thousand words," On the opposite page appears just one-half of our recent advertisement. The response to this advertisement indicates that all doubt as to CAM-STAT's leadership in this field has now vanished.

We believe that it is important for you to know why. Here are the reasons:

QUALITY • The use of CAM-STAT controls, properly applied, assures top performance and a minimum of service calls.

FIELD SERVICE • Our customers know that if a service problem does develop, a CAM-STAT engineer is on the ground immediately to pinpoint the trouble and make recommendations as to corrections, whether or not CAM-STAT controls are involved in the problem.

APPLICATION ENGINEERING SERVICE • Our customers know that our facilities are available to the industry, without cost or obligation, to assist in any application problems, before or after each furnace model goes into production.

NO SHORT CUTS • Our customers know that each CAM-STAT product will be carefully designed, developed and field tested before being offered to the trade.

NEW PRODUCTS • Our customers know that we are completely receptive to any new ideas on controls which might help to upgrade the Heating and Air Conditioning Industries. That is why a complete line of controls for these industries has been developed and is fast approaching manufacture for field testing during the coming season.

SERVICE ON SHIPMENTS • Our customers know that CAM-STAT ships on schedule, as promised.

Our customers know that we are completely independent and that the company policies which, along with quality products, have contributed to our success, will be steadfastly maintained.

All trade-marks shown by courtesy of our customers. There are, of course, other fine furnaces and water heaters using CAM-STAT controls and we are only sorry that their company policies do not allow their trade-marks to be used in advertising other than their own.

A number of the customers shown use CAM-STAT controls 100% on their production. Others use a lesser amount. The exact percentages, of which we are very proud, are known only to the companies themselves.

PAM-STAT

NCORPORATED • GRanite 7-1256 • BRadshaw 2-6361

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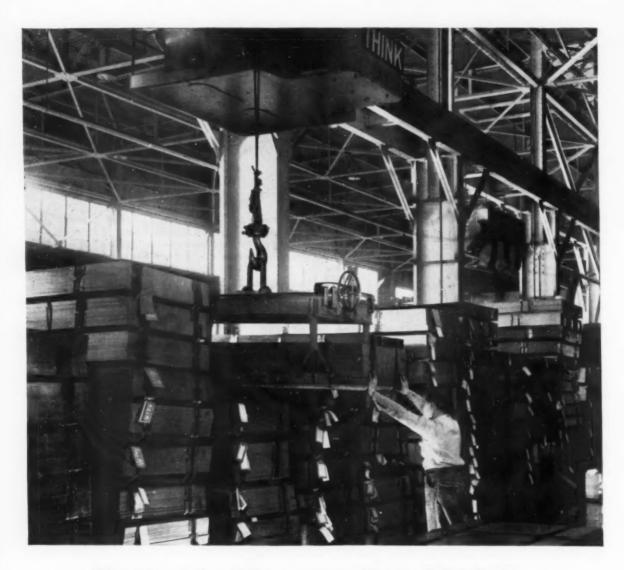


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Member





Sheet and strip—more than 20 kinds and Ryerson delivers fast!

You name it-Ryerson has it.

Tight-coated galvanized and galvannealed sheets that won't flake when you form them. Hot and cold rolled sheets. Pickled and oiled sheets. Stainless sheets. Ryex expanded metal. Perforated sheets. And many others, all in a wide range of gauges and pattern sizes.

Need special sizes? Modern equipment cuts them to

your specifications quickly and economically, in straight lengths or coils. Ryerson also offers a complete line of metalworking machinery and tools to meet virtually every requirement.

You can depend on Ryerson to deliver what you ask for and on time. When you want sheet and strip, give Ryerson a call—it pays!



RYERSON STEEL

Member of the AMAND Steel Family

Principal Products: Carbon, alloy and stainless steel—bars, structurals, plates, tubing—aluminum, industrial plastics, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK . BOSTON . WALLINGFORD, CONN. . PHILADELPHIA . CHARLOTTE . CINCINNATI . CLEVELAND DETROIT . PITTSBURGH . BUFFALO . INDIANAPOLIS . CHICAGO . MILWAUKEE . ST. LOUIS . LOS ANGELES . SAN FRANCISCO . SPOKANE . SEATTLE

Let's 'Audit' That 'Industry Audit'



THE EAGERNESS OF some elements in the warm air heating industry to accept — apparently wholeheartedly — a "verdict" from outside the field that the entire industry "has failed to perform properly" is, frankly, a puzzle to us. While we all recognize there are shortcomings in the warm air heating industry — as there are in all industries, and probably always will be — we can't be quite as ashamed as the American Institute of Management seems to think we should be in its recently published second "audit" of warm air heating.

Modernization Not 'Ignored'

The A.I.M. takes the industry to task for "ignoring the vast market of older homes with worn-out or obsolete systems in need of replacement," points out that such installations offer potential profits to dealercontractors and manufacturers far greater than do new homes. The report states, too, that the replacement market is not limited to obsolete furnaces, but includes a high percentage of homes built since World War II - many of which had "minimal" heating systems when built and which have been enlarged with little change in their heating installations.

Most industry people will agree, we think, that there are great opportunities to be explored in the modernization of worn-out and obsolete warm air heating systems. With the boom in new construction since World War II, the number of furnaces going into old houses as compared to total installations has been lower than the accepted figure of "two out of three" prior to the war. But it can hardly be said - as the A.I.M. does - that we have "ignored" modernization work, when some 50 percent of all furnaces sold are for replacement of worn-out or obsolete units.

(That the industry ignores the replacement market is hardly borne out, either, by the reception being given American Artisan's modernization issue, published last month. Since the very day that issue reached the hands of its subscribers, orders for extra copies of the modernization check-lists it features have been coming in by long distance phone, telegram and mail.)

Public Accepts Warm Air

The A.I.M. "industry audit of warm air heating" makes a strong plea for educating the public to understand and to demand heating comfort, and for a program to upgrade the quality of heating installations. (It would like to see a set of "enforceable" standards to control the quality of installations but realizes the problem involved, because a complete heating system differing from almost all other equipment in a home - must be customdesigned for the specific house and "manufactured in the home by skilled craftsmen.")

It can be said of any industry not just warm air heating - that it is highly desirable to educate the public to demand the best performance from its products and services (although whether this can or should be done by "enforceable" methods is perhaps questionable.) But to say that our entire industry has failed to perform properly in this respect, or that it suffers from "the tar brush of public suspicion," isn't in accordance with fact. The warm air heating industry has conducted extensive research for 30 years and more to improve its service to the public. It has won the dominant position over any other method for heating America's homes (the A.I.M. report itself points out that a growing proportion of single-family homes are heated by warm air, and that some three-quarters of all houses are warm air heated.) Certainly, these accomplishments don't reflect widespread public distrust, or "failure of the industry to perform properly."

Of course, efforts to educate the public further in good heating and to maintain high installation standards should continue — and are continuing. A case in point is American Artisan's program of Standards for Rating Heating Systems, inaugurated last year. Nearly 60,000 reprints of the check-list summarizing these standards have already been put into use by the industry. (American Artisan has been given a national editorial award, incidentally, for developing this industry program.)

The A.I.M. "audit" decries "uneconomic and dangerous furnace repairs by gyp repairmen (which) cost home owners heavily each year," would like to see "codes for repairs comparable to those for new installations." There are, unfortunately, some organizations that give rise to this complaint, but to condemn the entire industry on these grounds is unfair and incorrect. And - as any home owner well knows - the problem is far from being confined to warm air heating, and in fact seems more prevalent in other industries than it does in ours.

Warm Air-A.C. a 'Natural'

The A.I.M. also takes warm air heating to task (briefly) because "central air conditioning for homes has not as yet gained wide acceptance." Pointing out that warm air heating — with its duct work and registers — "is the natural adjunct of central air conditioning," it none-theless sees other cooling methods

making "substantial inroads" in the market. This conclusion is not borne out by surveys of home air conditioning installations which have been made by American Artisan in some 20 markets. In fact, the A.I.M. itself sees, in a following paragraph of its report, some increased use of heat pumps "in areas where power rates are low or winter temperatures are high" but concludes that "gas-fired warm air heating coupled with air-cooled electric air conditioning should continue to dominate the home air conditioning market."

Entire Story Not Told

The A.I.M. report is a bit overeager to stress some of the other points it would like to make with examples that don't tell the entire story.

For instance, in endeavoring to show the industry as not very progressive, an A.I.M. release announcing publication of the "audit" says that "as late as 1946-47, half of all furnaces being installed were still the coal-burning type." But both the release and the report itself fail to mention any of the wartime limitations that still affected use of oil or gas for space heating at that time.

A tabulation of total 1956 sales of "diversified manufacturers in residential heating" given in the "audit" is misleading, in that the figures apply not only to warm air heating but to other products as well. This is not brought out in the report.

The report decries direct sales by

manufacturers as often resulting in badly engineered systems, but — in another section — implies that direct manufacturer sales in the replacement market assure good performance and service.

Field research by the National Warm Air Heating and Air Conditioning Association on the performance of existing jobs is cited as revealing "some shocking facts." But the A.I.M. gives no credit to the industry for going out into the field to check on performance of installed jobs and to seek technical improvements. (Few other industries come to mind that have undertaken a comparable field investigation program for such a purpose.) In fact, these paragraphs are preceded by one on safety, so that the so-called "shocking facts" quoted might seem to apply to the safety of existing jobs, rather than to their performance from the standpoints of efficiency and comfort.

Verdict Ill-Founded

No one can quarrel with A.I.M.'s conclusion that programs to upgrade the quality of installations and to educate the public are highly desirable (although there are few industries about which the same things can't be said.) It seems to us, though, that the A.I.M.'s "verdict" of "failure of an entire industry to perform properly" is as ill-founded as are several of the statements made in its "industry audit" of warm air heating.





Wholesaler's 'Profit Program' Boosts Dealer-Contractors' Modernization Sales

A three-phase campaign, designed for more profit in '58, is built around American Artisan's modernization check-lists and *standards* card, and slanted toward each dealer-contractor's specific requirements



WHOLESALER'S OFFICE STAFF (1 to r) Robert Arents, Robert A. Friestad and Deanna Stadelman plans each step of the "Profit Program"

TO HELP DEALER-CONTRACTORS earn more profit in 1958, Grand Furnace Co., Grand Rapids, Mich. wholesaler, has launched a promotion program to uncover and sell prospects for modernization work. The check-lists published on pages 71-75 of the March American Artisan Modernization Issue are the nucleus of the program to locate replacement and remodeling prospects, and the Standards for Rating Heating Systems card, published in the July, 1957 American Artisan special section, is being used to help dealer-contractors sell quality jobs to the prospects thus uncovered. This one-two punch is known as the company's "Profit Program."

Grand Furnace Co. serves 59 Michigan counties, from its head-quarters in Grand Rapids. The dealer-contractor promotion campaign is directed by Robert A. Friestad, who has trained his sales staff to provide the assistance needed at the dealer-contractor level and to guide the "Profit Program" to its goal.

Dealer-contractors are instructed



SALESMAN WORKS WITH DEALER-CONTRACTORS to prepare a direct mail letter to accompany the check-lists. (1 to r) Richard E. Barrett, Robert Higbee and Ronald R. Hazen compose letter based on heating standards and modernization check-list



DIRECT MAIL PIECES can be economically prepared for any size mailing by use of office duplicating machine



PROSPECT LIST IS REVIEWED periodically by dealer-contractor's staff. Names of doubtful value are pulled and new prospects' names are inserted

individually in how to use the check-lists most effectively, and are shown how to select the distribution methods best suited to their particular areas. Specific techniques are worked out between the dealer-contractor and the wholesaler's salesman. Most widely used media are direct mail and cold canvass calls. Service personnel are also shown how to distribute the check-lists.

The profit program is broken into three major divisions: 1) promotion; 2) point-of-sale material; 3) service and financing. The promotion phase is built around American Artisan's check-lists. Instructional literature provided by the wholesaler tells why an aggressive sales promotion campaign is important. The firm's confidence in this program is reflected by this statement in the opening paragraph: "Remember, you can't make a profit by waiting for it to walk in the front door. The Grand Furnace Co. has been in business long enough to separate good promotional materials from those that are ineffective. We have tested a great many programs



THIS ARTICLE describes another way the Standards for Rating Heating Systems card has been used to sell modernization. The standards card, introduced in July, 1957 American Artisan, is ideal for use with the Heating Checklist promotion tool presented in the March, 1958 American Artisan Modernization Issue. Attractively designed and written in language the home owner can understand, the standards card lists the 12 points which contribute to complete winter comfort in the home, and rates the prospect's heating system "Good," "Fair" or "Poor" in terms of each of the 12 comfort conditions. The card adds authority to the sales presentation, and proves conclusively to the prospect the advantage of buying for quality rather than price. Copies of the standards card are available at two cents each from American Artisan.

and now have the one that has proved to bring in good prospects."

Point-of-Sale Materials Sell

Point-of-sale material offered by the wholesaler for the second phase of the "Profit Program" includes the usual sales aids, including product literature, case histories, and a visual demonstrator, as well as American Artisan's Standards for Rating Heating Systems card. The explanatory material supplied with the "Profit Program" stimulates enthusiasm with observations such as: "These point-of-sale materials practically sell the job for you. The standards card is one of the finest sales aids in the industry. Your prospective customer can actually see the difference when you use these materials. You easily justify your installation price and you earn more profit."

Offer Service, Financing Aid

Service and financing, comprising the third step in the "Profit Program," are emphasized in the program literature by comments of this type: "Engineering and service help are as near as your telephone. Just call your Grand Furnace Co. salesman. He is always available when you need him." Financing assistance is provided through three plans from which the dealer-contractor may select the most practical to develop in his organization. This part of the program helps avoid problems encountered in collecting overdue accounts at the retail level. The financing plan is provided at the request of dealer-contractors who wish to avoid having local banks handle the installment payments.

This is how Ronald R. Hazen and Robert Higbee, Higbee and Hazen Co., Portland, Mich., dealer-contractors took advantage of the Grand Furnace Co. "Profit Program." They contacted Richard E. Barrett, the wholesaler's salesman who services them, and told him of their interest in the "Profit Program" for '58. Their first step was a trip to the wholesaler's main office in Grand Rapids. Here they went over the program with Robert A. Friestad, who explained how other Michigan dealer-contractors had followed the program to more profit. They also discussed various advertising media that had proved successful in similar communities. After deciding which media they would employ, they discussed the method of following through. This phase of the "Profit Program" utilizes the check-lists and the standards card.

Direct mail was selected by Higbee and Hazen Co. as its primary promotion medium. The wording of the letters to be used in the campaign was worked out with Mr. Barrett, who has helped develop similar letters for other dealer-contractors in his territory.

A mailing list of prospects selected on the basis of the types of heating systems in their homes was compiled from the company's own list of its customers. Names were also taken from the city telephone directory. These names and addresses were stamped on metal plates and placed in a file cabinet. The metal plates, used in an addressing machine, make repeat mailings easier.

Because this program calls for sending more than one direct mail piece to the same prospect, the file will be separated from other mailing lists now used by Higbee and Hazen. Plans call for a minimum of three letters to be sent to each prospect.

More Plans on the Fire

Mr. Friestad is convinced the "Profit Program" will mean a great deal to participating dealer-contractors. He believes it will develop not only a large number of prospects, but also the type of people who are willing to have the best heating or air conditioning systems installed in their homes. Plans are now being formulated to use the modernization program outlined in the March Modernization Issue of American Artisan in combination with the Standards for Rating Heating Systems promotion tool, to help dealercontractors sell more heating systems that can be installed at a better profit.

THE HEATING, air conditioning and sheet metal check-lists published in the March American Artisan Modernization Issue can be used as direct mail pieces, for presentation by salesmen, as giveaway items for home shows, etc. Designed to remind home owners of their modernization needs, the two-color check-lists are available at the following prices:

Quantity	Cost
50	\$ 0.85
100	1.35
200	2.70
300	4.05
400	5.40
500	6.75
1000	13.50
2000	27.00
3000	37.00
4000	48.00
5000	59.00

To: The Editors	
American Artis	san
6 N. Michigan	Ave.
Chicago 2, III.	
Please rush the	following quantities:
	— Heating check-lists
	 Summer air conditioning check-lists
	— Sheet metal check-lists
Enclosed is my	check for \$ to cover reprinting costs.
	(Please print)
Name	
	iny
Street	Address
	nd State
City a	md State manufacturer

How Local Associations Can



Your local association can boost members' sales volumes by organizing a bigscale offensive on your market area via some of the methods prescribed in American Artisan's big Modernization Issue



OPEN HOUSES in modernized residences, in cooperation with other trades, show visitors what can be done to improve their own comfort. Grand Rapids, Mich. association tied in with national promotion campaign in remodeled house

THE LOCAL ASSOCIATION is the watchdog for the industry in the area it serves. It must not only watch out for developments that might be against the best interests of the industry and its members, but it must also help the industry grow in stature.

One of the ways a local heatingair conditioning-sheet metal association can help its members is to get behind a united effort to develop public interest in modernization of existing heating systems and replacement of deteriorated sheet metal used in residences.

Members Have Common Goal

Cooperative sales promotion that can be conducted by a local association is an excellent device to improve relationships among competing dealer-contractors. It gives them an opportunity to work together on a single idea that helps them all, and helps in pulling the consumer dollar into their common industry before the home owner decides to spend his money elsewhere.

A local association can call attention to the services offered by its members in a number of ways, and it can help its members locate work and install it at a profit.

The Grand Rapids Heating and Air Conditioning Association focused public attention on its members' services by conducting a contest. Notices of the contest were published in the local newspaper and a list of prizes was also publicized. Prizes were awarded for the most original entries on "Why I wish to modernize the heating system in my home." The board of judges, selected from the association membership, publicized the name of the weekly winner selected and the prizes awarded.

Answers submitted by contestants provided dealer-contractors with excellent sales points for following up leads uncovered by the contest.

Contest Scope Can Be Varied

Such a consumer-level contest could be run in a number of ways, depending on the size of the community and the number of dealercontractors in the association. One suggestion would be to offer a complete modernization job for the grand prize. Smaller prizes such as domestic hot water heaters, incinerators, window air conditioners and other equipment could be offered as weekly prizes.

The cost of the Grand Rapids association contest was divided among the members and the associate members of the association. Associate members provided equipment at their cost and the dealer-contractors installed it. No one dealer-contractor was permitted to use his individual role in the contest to his personal advantage. The association was credited in every case with providing the material and guarantees.

Booklet Stirs Readers' Interest

The Warm Air Heating Institute of Northern California has prepared a booklet entitled "House Heating Secrets." The organization promoted

Promote the Modernization Drive



COOPERATIVE NEWSPAPER ADS can describe all the benefits of and reasons for remodeling and replacement, list names and lines of association members. This two-page ad in the Milwaukee Journal, based on Standards for Rating Heating Systems, brought modernization business to local association members

this yardstick for purchasing a heating system to the public via eight ads in an area consumer magazine. The association's secretary also solicited the cooperation of local gas utilities, who agreed to offer copies of the booklet in their monthly publication which is sent to customers with each bill. The booklet describes the essentials of a good heating system and explains how existing equipment can be modernized to provide the high degree of comfort that the industry is capable of delivering with today's equipment.

This same offer was also made through paid local radio spot announcements inviting listeners to write for free copies of the booklet.

Newspaper Ads Stress Quality

The Milwaukee Sheet Metal Contractors' Association conducted a newspaper advertising program in which it spelled out, over a 26-week schedule of full page advertisements, standards for good heating systems and explained how they can be

achieved. Some of the advertisements pointed out how a home owner can avoid getting a "poor" system that normally results when equipment is improperly installed by inexperienced or unqualified people. All the association ads pointed out that all the members of their group (who were listed in the ad) are well established, qualified dealer-contractors who have the know-how and integrity to install the proper system.

Lecture Service Offered

The Heating and Air Conditioning Contractors' Association of Pittsburgh assigns members as speakers for social, civic and fraternal club meetings. These members have agreed to promote the association rather than their own firms in their speeches. The speeches, which are reviewed by association officers prior to their delivery, are slanted toward the many advantages of heating and air conditioning systems. Reasons for replacement of deteriorated sheet metal work are also detailed.



Another association that has participated energetically in civic affairs is the Nashville, Tenn. Warm Air Heating Contractors' Assocation. This group works closely with the city government to uphold the requirements of the city building codes, in the face of criticism by other factions which would profit from an ineffective ordinance.

All the local association activities outlined here can be very easily adapted to fit an extensive modernization promotion campaign. The check-lists published in the March American Artisan Modernization Issue (pages 71-75) can be used to develop public participation by offering to mail free copies on request.

Mailing Hits Likely Market

Direct mail is an effective vehicle for reaching selected modernization prospects. When answers are received from prospects who are interested in further details about modernizing their heating systems, adding cooling equipment or having sheet metal components replaced, the leads can be distributed equally to all members, according to a pre-arranged plan.

The association's direct mail modernization messages might be built around events of interest to the community, if possible naming public figures who are well known to the local citizenry and who have worked on projects beneficial to the community. (When this approach is used, it's advisable to obtain written approval from the person to be mentioned or quoted.) Letters or advertisements should refer to some of the services the association performs for its members and for the public. Messages directed toward public welfare could explain the importance of the points listed in American Artisan's modernization check-lists, and might suggest that readers write for copies of the check-lists to help them avoid some of the undesirable conditions that develop when maintenance is postponed.

Another association activity that has been found effective, though expensive, is presentation of the modernization message on billboards.

Home Shows Arouse Interest

Associations should also consider participating in home shows and parades. The value of this type of activity is that it again demonstrates the association's interest in the community, and reminds people that its recommendations are primarily based on what's good for the public.

Displays at home shows might be centered on comparison between old and new units or complete systems and between deteriorated sheet metal products and new work. The association could also give away attractive but inexpensive souvenirs to remind the public of the modernization ideas they picked up at the show. American Artisan's check-lists can be used very effectively in this type of promotion.

Tie in with Big Programs

Local associations can profit by participation in the Home Improvement Council's activities. HIC is a national organization whose sole purpose is to promote modernization. The local organization has the opportunity to work with other associations that are developing public interest in residential modernization. This civic approach would demonstrate the cooperative spirit of the heating, air conditioning and sheet metal association and would also keep contractors in other fields aware of the services offered by members of the heating, air conditioning and sheet metal association.

Dealer-contractors can decorate their showrooms, trucks and job sites with banners and symbols which tie in with the Home Improvement Council program. A distinct advantage of tying in with big promotions is that the public comes to associate the well-known symbol they see in other showrooms, on trucks, etc. with the heating, air conditioning and sheet metal dealer-contractor.

Free Publicity Available

The local association can provide a valuable public relations service for its membership by submitting weekly news releases about activities of the association or its members to the city editors of the local newspapers. Such news releases should be accompanied by photographs if possible. (Editors prefer human interest photos which show people doing things.) Civic projects, construction of large buildings and public structures, public building

programs, etc. are excellent subjects for acceptable news releases.

Conduct Training Sessions

Aside from sales promotion, local associations have the responsibility of training members in business management and technical subjects so each job is done profitably and to the satisfaction of the customer. The Cuyahoga County, Ohio Sheet Metal Contractors' Association is conducting several courses in dealer improvement for Cleveland area dealercontractors. One of the courses covers air conditioning theory: a second presents practical applications of cooling equipment; and a third deals with servicing of air conditioning equipment.

Any local association can adapt this type of educational program to the subject of modernization. The March Modernization Issue of American Artisan can be used as a textbook for these classes.

Secretary Is Good Investment

Other activities that can be undertaken by local associations will of course depend on the size of the association and on whether or not it employs a paid secretary. The secretary can be employed on full-time or part-time basis, but he should receive compensation for his work and he should not be a dealer-contractor member of the association. He should come from outside the organization but should have a knowledge of the responsibilities involved in promoting this industry.

The primary function of an executive secretary is to instill an atmosphere of friendly competition among members. It's a known fact that when competitors are friendly, price is not a major problem as it is in communities where competitors don't trust each other.

Weekly meetings are important for training; however, at least one general membership meeting should be held each month. Meetings afford the opportunity to exchange experiences, information, data and ideas which contribute toward healthier profits.





Opportunity knocks whenever a serviceman answers a call

Modernization Sales Begin With Service Trouble Calls

One of the best sources for leads in modernization work is the serviceman, this dealer says. When a home owner is having furnace trouble he may be interested in replacement

Leads for modernization and replacement business come from many sources. Some dealers find that one particular source is better suited to their market area than others. John Donnelly, "the original" Donnelly Tinners, Cleveland, finds that one of his best sources of leads is service calls. He has developed a method of analyzing the reports turned in by his service staff which helps uncover potential customers. He finds that servicemen's comments concerning the reason for the service call often provide an excellent opening for a sales presentation on why a service customer should consider modernizing or replacing his heating system.

Selling warm air systems as replacements for wet heat systems is a specialty of the Donnelly firm. Their reputation for this type of modernization work has brought in many leads. A large number of leads also comes from service requests by owners of wet heat systems. In one case a customer called for service because his boiler was leaking badly. Upon examination, the serviceman found that the boiler needed replacing. He called the sales department for a salesman to quote a price. The salesman examined the existing installation and gave the customer a bid of \$900 for a new boiler and the other necessary work.

While the service customer was obtaining bids from several other firms, the salesman drew a floor plan of the house, briefly sketched a duct system for a warm air installation, estimated his cost for replacing the wet heat system with warm air equipment and came up with a price of \$940. The advantages of the proposed warm air system over the old wet heat system resulted in a modernization sale.

Modernization Potential Unlimited

When asked why he prefers to do modernization and replacement work, John Donnelly said, "The potential is unlimited. Every home owner is your customer, every new house becomes a prospect within a few years. New types of systems, new equipment and new engineering techniques soon make older systems out of date."

Another advantage of the modernization business pointed out by Mr. Donnelly is that it avoids the problems and expense of training employees and releasing them when the volume of work falls off in the fall, as is the case in the new house field. Modernization and replacement work requires more skill on the part of installers and salesmen, but once they have developed the techniques required, they realize they have a job that will pay them a salary every week during the year. He points out that modernization work can often be planned to fit the installation staff's working schedule.

To maintain an even flow of work through the shop, prospects are developed from more than one source. In



PROOF of an ad is examined by John Donnelly, manager. Newspaper ads play an important role in the company's sales promotion program



REVIEWING billing procedures and selecting an envelope stuffer for the coming month is a routine month-end job for Mr. Donnelly and secretary Estelle Tilden

addition to leads from service calls, the neighborhood newspaper is used, giveaway items are sent to prospects, and callback inspections on recently completed jobs are used to uncover leads from the new customer.

When the neighborhood newspaper is used for sales promotion, the ad is always carefully planned to call attention to the company and its services in as emphatic a manner as possible. The newspaper, a weekly publication, serves 109,000 people on the west side of Cleveland, which in general covers the area served by the Donnelly company.

One of the souvenirs given to prospects and old customers is a memorandum listing the telephone numbers of fire, police, hospital and Donnelly's emergency heating service.

Callback After Completion Is Important

When making callback inspections to be sure that new equipment meets every expectation of the customer, Mr. Donnelly asks about friends and neighbors who may also be in need of heating advice. These calls are always made within five days after the completion of a job. Besides being an inspection and a lead getting expedition, the visit is also used as a collection call. Customers are told that when the man returns to check the system, they are expected to complete their payment. If a customer fails to pay the full amount of the bill, he is asked to sign a time payment form so that the financing may be handled by a money lending institution.

Expenses of a business specializing in modernization work are different from those of a business catering to the new house field. Mr. Donnelly feels that a spacious and well kept showroom located on a main thoroughfare is an important sales aid in the modernization business. The cost must be considered as overhead, but he feels it more than pays its way.

Every prospect is encouraged to come to the showroom to see the equipment being recommended and to learn the difference between types of equipment. Mr. Donnelly says, "Every prospect must be given individual treatment and be treated as an individual. You must never try to type a prospect according to any classification you may think he falls into. Some of the poorest appearing prospects will surprise you by failing to dicker over price and writing out a check for the full amount when you ask for it."

Selling and Engineering Costs Are Higher

Selling expenses and engineering costs in the modernization market are higher than in the new house field. On an average three sets of drawings and estimates are submitted for every sale completed. No price is quoted on any job until a complete survey has been made and every conceivable layout tried to bring an existing system into line with current standard prices.

Drawings of the proposed air distribution system and equipment location are not made to scale at the time of proposal, but all new supply locations are shown, old locations marked if to be modernized or closed, new return openings shown, and old return openings marked to be used or closed. The estimated price is put on the copy submitted to the prospect.

When a job is sold a special card is filled in for the company files. This card is $6\frac{1}{4} \times 10\frac{1}{4}$ in. and contains on the front all of the essential data for installing the job. It shows the customer's name, address, telephone number, name of workman installing the job, order number, type of furnace model number, date of sale, date installed, number of present openings, number of new openings required, length of new supply and return ducts, and special instructions for the installing crew.

Installation Card Includes Check-List

This card also includes a check-list for the installer to use. It asks seven questions dealing with the installation.



SPECIAL PARTS to meet a customer's need are the result of conference between Mr. Donnelly and Robert E. Hiller, foreman of the firm's installing crews



PARTICULAR attention is given specialty items required by commercial customers. Donnelly Tinners has been serving the commercial field since 1907

If gas is the fuel used, these questions deal with the distance between the meter and furnace, pressure regulator, pilot valve and if the new piping was checked for leaks. Another section of the check-list deals with the electric supply. Again, seven questions are asked, these dealing with wiring instruction and standard electrical procedures.

A third section of the check-list covers the controls and filters. It also has space for indicating model numbers and sizes. On the back of the card, three spaces are allocated for drawings of the basement, first and second floor. A sketch of the floor plan for each area is made in these spaces (not to scale) and a rough duct layout is made for each plan. Register locations, both new and old, are shown as well as furnace location and general trunk-line information. These sketches provide the data needed to prepare instructions for the installers. They also serve as a quick reference at a later date to review the work.

Always Builds Concrete Base

To assure a customer that he receives not only a well designed job but a nice appearing installation, it is the policy of Donnelly Tinners to build a solid concrete base under each furnace. This is 4 in. thick and serves two purposes. It levels out the unevenness so often found in basement floors and has proved quicker than shimming up the furnace to fit a plenum chamber. A wooden form is used to make the base outline.

Another policy of the company that lends itself to installing "that something extra" in every system is the method of panning uneven joists when the space is used for return air. A strip of asbestos paper is tacked against the underside of the joist before the metal sheet is attached.

When the company was first formed (50 years ago) much of its business was in the industrial and commercial sheet metal field. A number of these old customers continue to have their work done by Donnelly Tinners.

John E. Donnelly, present operator, is the second generation to manage the company. He continues to give commercial customers the same service that built the business. (The company's annual volume now is about 10 percent commercial.) When special parts or a piece of equipment are needed, the commercial customer just sends over a sample or sketch of the part and the sheet metal department does the rest.

Employees Build Firm's Reputation

The value of well trained and dependable employees is emphasized by Mr. Donnelly. He says that in the modernization and replacement field the employees have very close contact with the customer during the entire rebuilding job. Employees must be courteous at all times, must go about their work in a businesslike manner, avoid time consuming conversations with the customer, be both neat in their own appearance and in the work they do, must clean up refuse on the first and second floors as soon as it is accumulated and clean the basement upon completion of the job. Men who indicate more than average interest in housewives must never be used in modernization work because this trait in an employee can result in many complications both for the man and for the company. This rule applies also in selecting servicemen even though they have shorter periods of contact with the cus-

Because many of the leads for modernization prospects come from satisfied customers, it is most important that employees be trained to recognize the value of building good will for the company.

In building up a modernization business, however, it is not enough to keep customers satisfied, even though that is of prime importance. As the experience of Donnelly Tinners shows, a dealer-contractor should ask all his satisfied customers for possible leads. And servicemen should be trained to look for sales opportunities on every call they make.

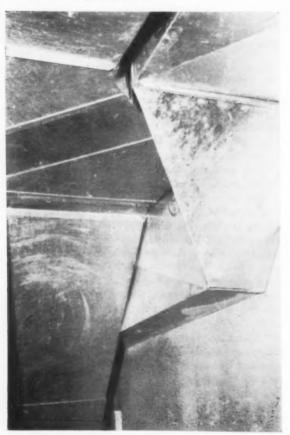
Zone Control Know-How



ZONE DAMPERS were lined with felt along the edges to prevent air noise or the possibility of metal rubbing against metal



EVERY AVAILABLE JOIST SPACE is used for duct work in "house of the future." Joist spaces were spread by carpenters wherever possible



SPECIAL FITTINGS were used to install properly sized duct work in limited space provided. These two ducts—one supply and one return—maintain the same area throughout the transposition fittings

To instill confidence in his sales story, a dealer should try to work in a point of reference that prospects can associate with the features being described, asserts Robert P. Johnsen, secretary-treasurer, Atomatic, Inc., Chicago. For this reason, Mr. Johnsen has worked closely with general contractors who have reputations for erecting some of the best-built houses and commercial structures in the community. Many of the buildings are well known for their connection with nationally known manufacturers and for their important effect on the community in which they are located.

Eight years ago the B. Stromberg Construction Co., serving the northern suburbs of Chicago, decided to build a different type of home. To introduce the home and its new features, Mr. Stromberg decided, as many builders do, to erect a model home for the public's inspection. His new house would have only the best equipment. It was not to be a low cost model but one that would sell in the \$20,000 to \$25,000 class. To install his heating and cooling equipment, he selected Atomatic, Inc., which had proved its ability to meet the exacting needs in other fine homes the builder had constructed for some of the wealthier people living in the north lake shore area of Chicago.

Participants Gain Public Confidence

The model home of eight years ago included many innovations introduced in 1949, which are now considered standard equipment in many houses. Based on the success of the earlier "home of the future," this same builder has constructed another house which will be open to the public for three months, displaying design ideas and

Lands Prestige Jobs



TO FABRICATE special fittings at the job site, layout and work bench was set up in the furnace room

equipment which again may become standard for homes in the near future. This new model home is expected to become as well known as the 1949 house, and subcontractors associated with its erection will certainly benefit from the public confidence accorded participants in prestige building activities such as this.

The model home features an "outdoor-living indoors" theme, and is a product of one of the country's foremost architects. An award by a board of architectural consultants for a semi-annual magazine published for the home building industry calls it "the most outstanding plan conceived during 1956." This home is the first of its kind to be constructed in the middle west. It contains 3150 sq ft floor area, not including the garage, patio or furnace room. The large living area calls for a well-designed air distribution system for year 'round air conditioning.

'Outdoor Living' Theme Poses Comfort Problems

Contributing to the outdoor living theme are a 12 ft ceiling in the quarry-tiled foyer and a high living room ceiling which tapers to the outer wall. Much of the wall area is made up of 7 ft panels of low thermal resistant glass starting at floor level. To continue the outdoor atmosphere a garden lounge has been addded to the house. This 29×11 ft room, located below the bedroom level on a concrete slab, faces a 29×18 ft flagstone terrace. The terrace theme is carried into the garden lounge through multiple sliding glass doors which run the full length of the 29 ft room. This area includes a fish pond, living flowers and shrubs, pottery and a garden bench.



... and pays off in even more prestige, accorded to participants in the construction of a thoroughly-promoted "house of the future"

Equipment other than the usual accessories and appliances found in model homes includes a stainless steel kitchen sink, built-in refrigerator, fire alarm system and a seven-speaker intercom system for conversation and high fidelity music piped throughout the house.

The heating-cooling system utilizes a 200,000 Btuh input gas-fired furnace, a 60,000 Btuh cooling system and three zone controls for the perimeter air distribution system. Other features of the heating-cooling system are outdoor temperature reset control, automatic changeover from heating to cooling or vice versa, and a humidifier.

Encounter Heat Transfer Problems

Several abnormal problems had to be solved by Robert Johnsen and his staff at Atomatic, Inc. in laying out the air distribution system. One was providing sufficient air to the living room and garden lounge to avoid drafts, yet maintain comfort conditions in the area of increased heat transfer between the inside and outside of the building. Another heat transfer problem was encountered in the bedroom section where heat is lost in four directions — through two walls, the ceiling, the floor over the unheated garage, and a 6 ft section which extends beyond the garden lounge and over the open terrace.

Location of diffusers was another problem, because many of the windows were located high on the wall, terminating near the ceiling.

Duct Space Is Limited

Space for duct work was limited. Almost all available joist space was used. Wherever possible, carpenters "spread the joists" to give extra space required for ducts. Structural complications in some areas prevented complete use of perimeter supply principles. In the living



LARGE GLASS EXPOSURE areas along outside walls are served by floor diffusers where possible (window at right is wiped by air from floor diffusers); however, drape-covered glass area at left had to rely on register in partition wall due to structural restrictions



BEDROOM AREA on top level receives its air supply from insulated attic ducts which feed high wall registers located in partition walls near high-exposure window areas

room, perimeter location of floor diffusers was possible in front of two of the 7 ft glass walls, but at a third point where an outside wall joined a partition, there was no practical way to locate a floor diffuser in front of the glass area. Therefore, they installed a high side wall register that directed the air stream across the glass wall.

Additional duct location problems were met in the bedroom section on the top level. Head room was at a premium, so the ducts were run from the lower level furnace room, beneath the floor of the second level, upward through a 24×12 in. shaft to the attic above the bedrooms. Thus, all air distribution to the four corner bedrooms was downward from the trunk line to diffusers located 6 ft high on partition walls. Air streams were directed to wipe the high windows.

All supply and return ducts in the attic and riser shaft were wrapped in 2 in. aluminum foil-covered insulation blankets. Rock wool batts with 4 in. reflective covering were used in outside walls wherever possible.

Lounge Is Separate Zone

The garden lounge was heated and cooled by a perimeter loop system imbedded in the concrete slab. Because of its location, heat loss and gain ratio, and use, this area was set aside as a separate zone. Floor diffusers were installed at 4 and 6 ft intervals. Radial ducts crossing the slab were insulated to prevent overheating or cooling of the floor in the immediate vicinity of the buried ducts.

About 3500 lb of sheet metal was required for the 3150 sq ft living area, an average of slightly more than 1.1 lb per sq ft. Many of the fittings required to fit the duct work into the tight spaces through which it had to pass were made at the job site, where journeymen set up their work benches and built the special fittings needed. Each transposition piece was designed to maintain the same area as the duct system. In several cases, horizontal ducts (placed against the ceiling) had to be turned vertically within 18 in.

In laying out the zones for the air distribution, Mr. Johnsen took into consideration the approach used by the architect, who followed the general practice used today.

Architects usually divide rooms into groups to serve different family living needs. Likewise, the temperature in each area should be controlled to meet occupancy requirements. The degree to which these requirements are met largely determines the livability of the house.

Zoning the air distribution system is often prescribed to maintain the comfort level required in each area because of several factors: 1) secondary sources of heat which affect limited areas within the house; 2) special temperature requirements of the family; 3) reduction in operating costs; 4) more than one floor level in the house; 5) rambling floor plan; and 6) large areas of glass or wall construction of varied materials.

Explain 6 Reasons for Zoning

These reasons for zoning can be enlarged upon as follows when talking to the home owner:

Item 1: secondary sources of heat from kitchens, fireplaces and party gatherings are not uncommon and affect the demands of the thermostat on the heating or cooling equipment. The comfort level in rooms unaffected by these heat sources but governed by the same thermostat will not be satisfactory.

Item 2: special temperature requirements of a family can be satisfied with zone control. For example, low temperatures can be maintained in adult sleeping areas while more heat can be supplied to areas occupied by small children, invalids, or older people.

Item 3: reduction in operating costs is possible because less heat can be directed to unoccupied spare rooms and recreation rooms during the winter and cooling can be reduced in like areas during the summer. During winter it is also possible to utilize more fully the secondary sources of heat such as sun, fireplace and kitchen.

Item 4: when the house has more than one level, structural characteristics and exposures differ considerably from one floor level to the next. Zone control corrects the cooling unbalances caused by varied exposure conditions.

Item 5: when the floor plan is spread out, zone control maintains the desired temperature level in any portion



IDENTITY LABEL bearing company name, address and phone number is attached to heating-cooling system by Robert P. Johnsen, Atomatic, Inc.

of the house, regardless of its distance from the heating or cooling source.

Item 6: if the house has large glass areas or if different types of wall construction materials are used, the varying rates of heat loss or gain can be compensated more closely by providing the right quantity of air at the right temperature to these particular areas.

Zoning Method Depends on Conditions

Zone control can be provided in several ways. It's up to the heating-cooling engineer to specify the method best suited to the conditions in each building. One common practice is to divide a house into three general zones, each controlled by its own individual thermostat. An example of such a zone system is illustrated in this article. The house is a four level building with four bedrooms in one zone. A second zone controls the garden room. The third zone contains the living room, kitchen, dining room and utility room.

The temperature in each zone is regulated by a centrally located thermostat which controls a damper actuator near the beginning of the air trunk supplying the zone. An electric clock thermostat was installed to lower the temperature in the bedroom zone during the night. The thermostat resets automatically each morning to respond to the daytime adjustment.

Use Method Most Suitable

Zone control in heating also can be obtained by the use of two, three or even four furnaces; or by a dual trunk system with the thermostat, located in the main living area, regulating an actuator which opens or closes a damper to increase or decrease the amount of air supplied to the main living area. The air provided to other sections of the house is governed by the quantity needed for the living area. (The second zone usually includes bedrooms, recreation and utility rooms.) Still another

way of providing zone control is through the use of face and bypass dampers in each zone trunk. The face and bypass dampers respond to a thermostat located in the zone being supplied and also modulate the quantity of air passed across the heat exchanger. The temperature of air mixed in the supply duct is a product of the quantity of the two air streams.

Dampers located in ducts to control air flow to the zones have felt strips along the two outer edges to prevent air noise when the damper is nearly closed.

Golden Opportunity for Promotion

Being part of a model home exhibition such as this opens the door to many sales promotion opportunities. Mr. Johnsen has taken full advantage of them. His company's name is prominently displayed near the furnace and on the zone control panel. He has also placed on the wall blueprints of the floor plan, defining the areas of the house served by each zone.

On opening day, over 4000 people passed through the house. A sales representative was on duty at all times while the house was open. Many of the visitors had bought houses from the general contractor and also were old customers of Atomatic. Inc. Mr. Johnsen says, "It was like homecoming day." A number of good sales leads resulted from the explanations and demonstrations of zone control and summer air conditioning.

The model home is open daily for special showings and to the public on weekends. A representative from Atomatic, Inc. is always on hand to greet visitors.

The prestige of having been selected to install the heating and cooling system is helping to sell jobs to people who have not visited the model home but who have heard about it from friends and neighbors.

Mr. Johnsen says, "Public confidence is built around a company's reputation and being connected with a project like this has broadened our reputation and prospect confidence in the type of work we suggest."



What Makes Cooling Coils Cool?

A study of the characteristics of heat transfer from air to refrigerant will pay off in properly sized installations. Turning again to psychrometrics, let's look into the contact and refrigerant factors which determine cooling coil performance

By S. W. Reid

Air Conditioning Engineer Gilbert Associates, Inc.

MUCH HAS BEEN SAID in recent articles in this series about the value of the psychrometric chart in determining cooling loads. In the December, 1957 article we told the basic story of the chart and constructed the various lines. In January, 1958 we used the chart to plot various air conditioning processes including a complete cooling cycle in which air re-

turning to the air conditioning unit is mixed with outside air, is cooled and dehumidified, and finally is reheated and rehumidified in absorbing the cooling load.

Sensible Heat Determines Slope

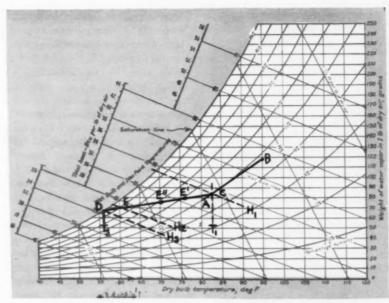
In the third article, in February, 1958 American Artisan, we took a closer look at the significance of the slope of the cooling line. We saw how its point of origin, point C in Fig. 1, is determined by the relative percentages of outside air at condition B and return air at condition A. We saw how its slope from point C is related to the percentage of sensible heat in the total calculated load. We determined that if the load com-

prised all sensible heat (with no latent heat in the form of water vapor to be removed) the line through C would be horizontal and that if the load were all latent heat (with only moisture reduction — no temperature reduction — necessary) the line through C would be vertical. Since most comfort air conditioning loads require both temperature and moisture reduction, we saw that line CD would represent a typical cooling path.

Point D was shown to be quite significant. It is, of course, located by the intersection of the saturation curve and the line drawn through C at the slope determined from the load calculation. The temperature value at this intersection is called the apparatus dew point or the mean coil surface temperature.

Some Air Bypasses Coil

If air at condition C could be passed through a finned coil and cooled along path CD to point D, the air leaving the coil would be saturated; that is, it would contain all the water vapor it could hold at the dry bulb temperature T_a at point D. In actual practice it is not possible to cool every particle of air to point D by such a setup. Physical limitations in the coil construction prevent all the air from contacting the cold metal surface. Some of it



1 COOLING PATH IS PLOTTED as line CD on psychrometric chart, which shows percentage of sensible heat in total calculated load, apparatus dew point and adequacy of cooling coil performance under various conditions.

inevitably gets through without being cooled or dehumidified. Air leaving the coil, therefore, can be thought of as a mixture of two quantities. We can consider one such quantity, by far the largest, as completely cooled and dehumidified until it is all at point D, while a much smaller quantity, having bypassed the coil completely, is represented by point C. The mixture of these

two quantities must always fall on the straight line connecting the two conditions. In this case the line is CD, and the mixture may be represented as some point E, which will normally represent air which is somewhat more than 90 percent saturated

Coil Is 'Metal Barrier'

With the preceding background, let's take a closer look at some of the factors that enter into cooling coil performance. Fundamentally, the cooling process is one in which there is a flow of heat from a warm fluid (air) to a cold fluid (refrigerant). It is obviously not practical to have these two fluids in direct contact with each other. We must interpose a metal barrier between them, which we call a coil. Heat must flow from the air to the outer metal coil surface, through the metal to the inner coil surface, and to the refrigerant.

A fundamental cooling coil would be a single bare, refrigerated pipe or tube running perpendicular to the air flow through duct as shown in Fig. 2. If the pipe area were small in comparison to that of the duct,

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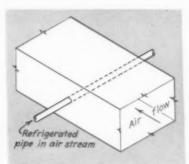
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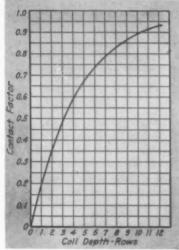
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2 BASIC COOLING COIL would consist of refrigerated tube running perpendicular to air flow through a duct. As coil surface increases, leaving air comes closer to saturation point



3 CONTACT FACTOR improves with addition of coils (without changing face area of coil), up to practical limits

we would not expect much air to contact the cold surface. The mixture of bypassed air and cooled air in this case would be represented by point E' in Fig. 1, provided that air approaching the coil were at condition C and that the coil surface were at temperature D.

Second Pipe Improves Ratio

If we add a second parallel pipe through the same duct, the air has twice the pipe surface area to contact. Since the two-pipe coil will cool a greater percentage of the air passing over it, the condition of the leaving air should be further along path *CD* in Fig. 1. We are now able to obtain a leaving air condition as represented by point E".

The more air which contacts a cooling surface at a given temperature, the closer the leaving air will approach saturation, as represented by point D. There are, however, practical limits to the amount of surface that can be built into a coil. As surface is added and point E gets close to point D, the improvement in E per given increment of surface becomes less and less so that actually an infinite amount of surface would be required to cause points E and D to coincide. Another limitation is the allowable resistance to air flow. The more metal we cram into the path of the air, the more pressure it takes to maintain a given

Two Factors Rate Performance

Coil performance is evaluated in terms of two factors which are entirely independent. One is called the contact factor and the other is called the refrigerant factor.

The contact factor might be thought of as the fractional part of the total amount of air passing through a cooling coil which, through intimate contact with the metal surface, is cooled to the temperature of the metal. With the single pipe coil we first described, the contact factor would be low because very little air actually contacts the cooling surface. When the second pipe is added, the contact factor becomes higher.

Note with reference to Fig. 1 how the distances CE', CE" and CE increase with the amount of surface used in the coil. These distances represent the total heat removed from each pound of air which passes through the coil and are proportional to coil-air contact. If 100 percent coil-air contact were possible, a pound of air could be cooled from C to D and the contact factor would be 1.00. If air leaves the coil at points E', E" and E, contact factors are expressed as the ratios CE'/CD, CE"/CD and CE/CD, respectively.

Numerical values for these ratios may be calculated by using the total heat values that are read from the psychrometric chart at the various points. Thus, $CE/CD = (H_1 - H_2)/(H_1 - H_s)$. We now see that the contact factor is actually the percentage of travel down a required cooling path such as CD that a given coil can effect upon a given amount of air.

Is Surface Effective?

So far, we have related the contact factor only to the amount of coil surface. While this is basically true, the arrangement of that surface determines how much of it will be effective. A two-row deep coil with large face area, for instance, might have the same amount of surface as a four-row coil of half the face area or a six-row deep coil of one-third the face area. For the same air flow, we should expect three entirely different contact factors even though the amount of surface is the same for each coil.

Establish Contact Factor

The basic contact factor for a certain type of coil must be established by test. Once this is known, it is possible to calculate what the factor will be for changes in the number of rows, everything else remaining the same. The relationship is: $CF_x = 1 - [{}^y \sqrt{(1 - CF_y)^x}]$ where CF_y is the known contact factor for a coil of y rows deep and CF_x is the unknown contact factor for the same coil except that it has x rows.

As a simplified example using this equation, suppose that a one-row coil operated with an established contact factor of 0.2. We want to know how much improvement can be made if a six-row coil of the same face area and construction is used. Substituting in the equation:

$$CF_6 = 1 - [\sqrt[1]{(1 - 0.2)^6}]$$

= 1 - 0.8⁶ = 0.738

Fig. 3 shows similarly-calculated values for other row depths. This figure illustrates graphically our earlier statement about decreasing gain per given increment of surface as the total amount of surface is increased.

Fins Increase Coil Surface

The second independent factor in coil performance is the refrigerant factor. The value of this factor is related to the rate at which heat can be made to flow from the coil surface to the refrigerant. Much more heat can flow from a given area of metal inside a tube to a liquid refrigerant than can be made to flow into a corresponding area from air passing across the outside of the tube. To even things up, therefore, more surface, in the form of fins, is added on the outside of the tube. Fins gather heat from the air and conduct it to the tube wall. It continues by conduction through the wall to the refrigerant inside. It is easy to appreciate how a poor bond between the base of the fin and the tube could reduce the effectiveness of the fin.

Assure Good Fin-Tube Contact

There are several ways of achieving good fin-tube contact. In one method, where the construction and materials are suitable, the coil and fin assembly is dipped into a bath of molten tin and lead. The coating metal fills all voids between the fin collars and the tubes, assuring good thermal connections. In another method, tubes are expanded either mechanically or hydraulically into the fin collars. Either of these two methods produces good fin-tube contact.

The refrigerant factor is a function not only of the physical construction and arrangement of the coil, but also of the velocity, distribution and heat transfer characteristics of the refrigerant. A section of a cooling coil which does not receive the optimum flow of refrigerant will not handle its proportional share of the cooling load.

The refrigerant factor is the reciprocal of the overall coefficient of heat transfer between the coil surface and the refrigerant. 1/RF is expressed in Btuh per sq ft of coil face area per

row deep per deg temperature difference between mean surface temperature and mean refrigerant temperature.

Equations Show Heat Transfer

Several basic equations are used to express the transfer of heat from air to refrigerant. One way of expressing these is as follows:

1) Flow of heat from air to the outer coil surface of the coil:

 $Q = W \times (H_1 - H_s) \times CF$ (This equation is used only when the coil surface temperature is equal to

What Is 'Air Conditioning'?

True air conditioning provides comfort in all seasons of the year, according to the American Society of Heating and Air - Conditioning Engineers. The ASHAE defines air conditioning as follows:

"Air conditioning is the process of treating air so as to control simultaneously its temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space."

or below the dew point temperature of the entering air so that dehumidification takes place)

 $Q = W \times 0.24 \ (T_1 - T_s) \times CF$ (This equation is used when the coil surface temperature is above the dewpoint temperature of the entering air so that only sensible cooling takes place)

Flow of heat from the coil surface to the refrigerant:

 $Q = n/RF \times (T_s - T_r)$

In the above equations,

Q is Btuh/sq ft coil face area

W is lb air/hr/sq ft coil face area H_1 is Btu/lb total heat of air at entering condition

H_s is Btu/lb total heat of air saturated at coil surface temperature CF is contact factor determined

experimentally for basic coil design 0.24 is Btu/lb/deg F specific heat of air T_1 is deg F dry bulb temperature of entering air

 $T_{\rm s}$ is deg F coil surface temperature

 T_r is deg F refrigerant temperature

n is number of rows in coil in direction of air flow

1/RF is Btu/hr/sq ft face area/ rows deep/deg F temp. diff. between coil surface temp. and mean refrigerant temp. This is the reciprocal of the refrigerant factor and must be determined experimentally.

Is Coil Wet or Dry?

Note that two equations are given for heat flow from the air to the metal coil surface. The first is used for a "wet" coil in which both sensible and latent cooling are taking place simultaneously. For this case the "driving force" which causes the heat to flow is the difference in total heat between the air and the surface $(H_1 - H_s)$. When a coil is "dry" as it would be if the surface temperature were above the dew point temperature of the entering air, the difference in temperatures $(T_1 - T_0)$ is the "driving force" and the second equation must be used as noted.

Plotted Data Rates Coil

By slightly rearranging the equations for flow of heat from the air to the outer coil surface (1), it is possible to relate the capacity of a coil per sq ft of face area per unit of "driving force" (either total heat difference or temperature difference, as the case may be) to air velocity and to rows of coil depth. When this information is plotted on the psychrometric chart it becomes a very useful coil rating curve.

By rearranging the equation for flow of heat from the coil surface to the refrigerant (2), it is possible to solve for the refrigerant temperature T_r necessary to produce the mean surface temperature T_s required to solve a given cooling problem. Like the other equations, this one also may be plotted as a family of curves showing the values for various depths of the same basic coil.

HEATING THE BASEMENT - PART 1



How to Estimate

Below-Grade Heat Losses

An analysis of supplementary data pertaining to below-grade heat transmission in basement heating jobs leads to selection of a generally-acceptable procedure based on pre-selected U values which have been tested by experience

AFTER EXPOSURE from every direction to suggestions about modernization of his home and improvement of his family's comfort (see the big March 1958 Modernization Issue of American Artisan), it's a pretty good bet that the home owner eventually will decide to remodel his basement.

Whether he elects to replace his existing heating system entirely or to modernize it to provide even and ample distribution of warm air throughout this new living space, he is calling on the heating dealer-contractor to solve a problem about which comparatively little is known—figuring actual heat loss from the parts of the basement rooms which are below grade level. Various methods are used for estimating these below-grade heat losses but none is pre-

cise. And none is completely satisfactory because the rate of heat loss through a below-grade wall depends on conditions about which we can know little when we figure a job.

The most common methods used for such below-grade heat loss calculations are as follows.

Set Earth Temperature Values

The first method assumes that the average winter temperature of the earth within 7 or 8 ft of the surface is 50 F in northern United States and about 60 F in the southern part. For example, if the basement air temperature is 70 F, the air-to-ground temperature difference through both basement wall and floor is assumed to be 70 F - 60 F = 10 F in the

South and 70 F - 50 F = 20 F in the North. The heat loss through the wall is then figured according to the formula: Btuh = (wall area, sq ft) \times (U value of wall) \times (air-to-earth temp. diff.)

In figuring the below-grade wall heat loss by this method, common (although not quite correct) practice is to use the same U value for the wall above grade and below grade.

For basement floors the U value is often assumed to be 0.10. The formula for floor heat loss becomes: Btuh = (floor area, sq ft) × 0.10 × (air-to-earth temp. diff.)

As in the case of the basement wall below grade, the temperature difference used in this floor loss formula is often taken as 10 F in the South and 20 F in the North. 1 BASEMENT FLOOR PLAN is sketched to scale, to establish total wall and floor area for heat loss calculation

A second common method is based on the fact that the earth temperature near the surface is much lower in winter than that 6 to 8 ft below the surface, and on the assumption that the temperature at 6 to 8 ft is about the same as the ground water temperature 30 to 60 ft below the surface. The U.S. Geological Survey publishes a map from which the ground water temperature in any locality can be determined with reasonable accuracy. Using this method and assuming an average U value of 0.10 Btuh for both floor and wall below grade, the American Society of Heating and Air-Conditioning Engineers publishes a table giving Btuh heat losses per sq ft for wall and floor, from which Table 1 is compiled.

Engineers, who are more inclined than practical dealer-contractors to use this second method, usually modify it somewhat on the basis of their own experience. One objection to both methods is that neither directly takes into account the outdoor air temperature used as a basis for figuring heat losses. Another objection is that in many cases both methods produce somewhat greater heat loss estimates than experience shows the actual losses to be.

Single U Value Employed

The third method — recommended in NWAHACA Manual 3 — uses a single heat transmission factor for basement floor and any type of below-grade basement wall. A distinct

2 EXPOSED WALL SECTION
drawing establishes all construction variables (edge joists, aboveand-below-grade wall areas)

advantage of this method is that the same indoor-outdoor design temperature difference is used for basement rooms and for all constructions above grade. This method is easy to use and the results seem reasonably accurate from the practical standpoint.

Several conditions should be kept in mind regarding heat losses from basement rooms. Taking the foundation wall as an illustration, we know that the rate of heat loss through this wall above grade depends on:

- a) wall construction
- b) room air temperature
- c) outdoor air temperature

For the same wall below grade,

items a and b remain the same. But for item c we have earth, instead of outdoor air, in contact with the outside wall surface. This greatly complicates the problem because it brings us face to face with three difficult questions about the condition of that earth:

- 1) What is its temperature?
- 2) What is its moisture content?
- 3) What is its texture?

Taking these in order, the earth temperature at the surface tends to follow rather closely the average daily air temperature. For example, if the average air temperature has been just above 32 F for several days, then drops to 30 or 31 F for 24 hours, we'll find a thin crust of frozen earth at the surface. If the air temperature rises above 32 F the next day, the thin crust thaws. If the average daily air temperature remains below freezing a number of days, we find the frost penetrating farther into the ground. And the colder the air, the faster and farther the penetration. If we were to figure degree days on a 32 F basis (instead

TABLE 1 — BELOW GRADE wall and floor loss values are based on average U value of 0.10 Btuh and on assumption that earth temperatures are comparable to known ground water temperatures

	Heat loss,	Btuh per sq ft
Ground water temperature	through basement floor	through wall below grade
55 50 45	1.0 1.5 2.0 2.5 3.0	3.0 4.0 5.0

11	Name of R	oom					BASE	SENT				
2	Room No.		St	ory		1.1	1	STORY	2	STORY	3	STORY
3	Running F						128	FEET		PEET		FEET
4	Ceiling He	ight.	-A	BANE	GRAD	E	2.5	FEET		FEET		FEET
	Room Cine		V 8	ELAW	GRAD	E	5.5					
	MANUAL 3			Table 1		Table 1	Area		Area		Area	
TY	PE OF EXPOS	URE	Rus Beast.	700	HTF	Multi- plier	or Crack	Btuh. Loss	OF Crack	Btuh. Loss	or Crack	Btuh. Loss
	Gross	8.	47-0	39			320		700		54	
5	Exposed Walls	b	477	39			704		800	1	30-	
	Windows	8.	1-0	1	1.13	85	24	2040		2040		1
6	and	1	, ,	-	1000	-	-	2010	-		-	1
	Doors	E.								-		1
	Net	8.	47-a	39	0.52	39	296	11544		11544		
7	Exposed	b. ,	47-1	39	0.06	5		3520				3520
	Walis	€.										
8	Cold	8.										
	Partition	Ь.										
9	Cold	8.										
	Ceilings	b.		-								
10	Cold	B.	49-4	44	0.06	5	952	4760		-		4766
-	Fibers	B.	62.0	62	1.10	100		20 440	-	21		-
	Infil-	b.	52-0	33	1.60	120	27	3240	-	3240	-	-
11	tration	C.	-	-	+	-	-	-		-	-	-
	CLOCHON	d.	-	-	-	-	-	-		-	-	-

3 HEAT LOSS IS DETERMINED on work sheet (for 75 F design temperature difference) as it normally would be figured (column 1) and by separating above-grade and below-grade losses (columns 2 and 3) for purposes of analysis. Total is same in each case.

of the 60 F basis we use to figure degree days for estimating fuel consumption) we could probably find a fairly definite relationship between such degree days and the depth of frost penetration. This is mentioned as an example of the fact that the temperature of the earth near the surface is affected principally by the outdoor air temperature and most of the basement wall is near enough to the earth's surface to be directly related to the outdoor air temperature. In this respect, therefore, the NWAH ACA Manual 3 method of calculating heat loss through a below-grade basement wall must be considered more realistic than either of the other two methods.

Floor Heat Losses Covered

But how about the basement floor? If it is 5 or 6 ft below grade level, its rate of heat loss is perhaps more closely related to the ground water temperature (the second method mentioned) than to outdoor air temperature. Manual 3 covers this factor to a reasonable extent, because there's some relationship between the temperature of outdoor air used as a

design basis and the temperature of the ground water. Areas which have low outdoor design temperatures also have low ground water temperatures; and areas with higher outdoor air temperatures have higher ground water temperatures. Therefore the Manual 3 method is considered by most engineers and dealer-contractors to be the most practical for general use at this time.

Moisture Affects Transmission

Heat transmission losses through basement walls and floors are affected by the moisture content of the soil as well as its temperature. When, for example, the earth in contact with a basement wall is wet, it conducts heat away from the outside of the wall much faster than when it is dry. And the faster heat is taken away from the outside wall surface, the greater the rate of heat transfer through the wall. We know this condition exists but we don't know, when we figure the heat loss of a building, what the moisture content of the earth will be. So we have to use a heat transmission factor (modified U value) that will be safe when the earth has a moisture content which is somewhat higher than normal.

Snow Slows Frost Penetration

Since frozen earth conducts heat away from the wall faster than unfrozen earth with the same moisture content, the depth of frost penetration into the ground has a direct relation to the rate of heat loss through the wall - the deeper the frost penetration, the greater the heat loss. Here again, the Manual 3 method has an advantage over the other two methods mentioned, because it relates the rate of heat loss through the wall to the outdoor design temperature. The lower the average outdoor air temperature, the deeper will be the frost penetration.

Snow is a complicating factor here. The many millions of tiny air pockets entrapped between the snow particles make excellent heat insulators. Therefore, if a blanket of snow covers the ground during cold weather, frost penetration isn't as deep as it would be if the ground were relatively free from snow.

Soil Texture Is Big Factor

Now let's briefly consider the texture of the soil. A hard packed clay in contact with the outside wall conducts heat away more rapidly than loose, sandy earth. Unless there's so much water in the soil that it is actually muddy, there are many millions of dead air pockets between the loosely packed soil particles. These air spaces provide quite effective insulation to slow down the transfer of heat away from the outside surface of the wall. Soil texture differs infinitely in size and number of air spaces. Each texture affects the rate of heat conductivity away from the wall, and thus the transmission rate through the wall itself.

Background Justifies Rules

This background information is presented in answer to specific requests by dealer-contractors at about 200 heating classes. These men want more complete explanations than they find in NWAHACA manuals or other texts, regarding below-grade heat losses of basement rooms. They want more supplementary information justifying the practical rules which they follow in their daily work so they can better decide whether to accept and use published heat transmission factors in their heat loss calculations or to modify those factors to meet specific conditions.

Let's turn now to a practical problem. In last month's "classroom" we figured the heat loss of a small bungalow in which a heating modernization job was to be installed. At that time we considered only the heat losses of the upstairs rooms. But in figuring room-by-room Btuh losses. we assumed that the basement would also be heated so we did not figure any heat loss downward through the floor. With the addition of ceiling insulation, storm sash and storm doors, the total heat loss amounted to 45,064 Btuh with a design temperature difference of 75 F. The plan of the basement, which we'll now consider, is shown in Fig. 1 and a section of the exposed wall is represented in Fig. 2.

Don't Forget Edge Joists

Unless the basement has a finished ceiling attached to the bottoms of the first story joists, we should consider the ceiling height of the baseent as 8 ft. Thus, as shown in Fig. 2. the wall height is 2.5 ft above grade and 5.5 ft below grade. In figuring an old-house job, don't forget that, without a ceiling on the bottom of the joists, there is a measurable heat loss through the header (or edge) joist of the box sill and the sheathing and weatherboarding. Although the rate of this heat transmission through the box sill is less than that through the ordinary masonry foundation, it nevertheless represents a measurable loss and it is usually considered good practice to include it as if it were part of the foundation.

Basement Is Single Room

Let's assume the owner expects to use the entire basement as one large ABOUT THE AUTHOR OF THIS SERIES NO STRANGER to Artisan readers and the heating-cooling field, Guy Voorhees is one of the industry's outstanding authorities. For many years, he has been associated with NWAHACA, assisting in the preparation and presentation of educational programs, technical manuals and government and industry reports. Mr. Voorhees long has been in a position to keep abreast of latest developments, and his reports in American Artisan reflect these up-to-the-minute ideas. This is the fourth in a continuing series.

room. Fig. 3 shows the heat loss calculated according to NWAHACA Manual 3 and using the association's work sheet form 2. In making this heat loss calculation we assume the crack between foundation and sill has been caulked. The heat loss is based on a 75 deg design temperature difference, the same as was assumed for the rooms of the house in last month's "classroom." We found that the room heat losses totaled 45,061 Btuh after insulating the ceilings and installing storm sash and storm doors. Add to this the 25,104 Btuh basement heat loss as shown in line 12, col. 1 (Fig. 3). This 70,168 Btuh total would represent the minimum furnace bonnet capacity required.

Manual 3 Method Is Adequate

The NWAHACA Manual 3 heat transmission factor for below-grade basement walls is almost certainly high enough to take care of earth conditions on the outside of the wall which are somewhat less desirable than normal, according to practical experience and observation. But let's suppose, for illustration, that the below-grade heat loss is as much as 50 percent greater under design conditions than our calculations show. In line 7-b, Column 1 or 2 of the work sheet (Fig. 3) we see that the calculated wall heat loss below grade is 3520 Btuh, A 50 percent increase would add 1760 Btuh to the total heat loss of the house, raising it from 70,168 to 71,928 Btuh - an increase of only 21/2 percent, which is of no consequence so far as furnace sizing is concerned.

Dampers Handle Excess Load

But what about sizing the duct system in the unlikely event that, under design conditions, the actual heat loss through the below-grade wall section is 50 percent or 1760 Btuh greater than our calculations indicate? Line 12 in column 1 of the work sheet (Fig. 3) shows that the total calculated basement heat loss is 25.104 Btuh. Addition of 1760 raises this total to 26,864, an increase of only 7 percent. We all know from experience in adjusting and balancing systems after the installation is completed, that if the furnace is properly sized, the dampers can be easily adjusted to take care of such a small increase in heat delivery to one section of the building.

The foregoing discussion suggests— as an answer to the many questions which have been raised— that we can safely accept the NWAHACA Manual 3 method of figuring belowgrade heat losses, so far as design temperature conditions are concerned.

Basement rooms present another and sometimes annoying problem—that of keeping them comfortably warmed during the latter part of the heating season, when the heat loss of upstairs rooms becomes considerably less than that of the basement. This common source of customer complaint will be discussed in full in next month's "classroom" discussion.

Big Sheet Metal Business Built on



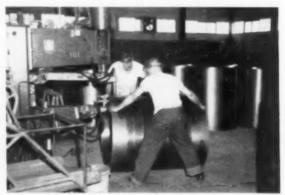
BANKS OF HEAVY DUTY TOOLS make it possible for shop to handle a variety of metal forming jobs at one time. Adequate working space around machines is company policy



COMBINED SKILL of shop foreman Robert Petty (left) and H. E. Lake makes easy work of intricate copper hip panel section



MULTI-PURPOSE POWERED TOOLS increase production in light gage sheet metal shop to three times the output of single function, manually operated tools



LARGE AND SMALL AUTOMATIC WELDERS increase shop's welding capacity and speed. This welder produces 3600 spot welds per hour on 12 ga concrete form.

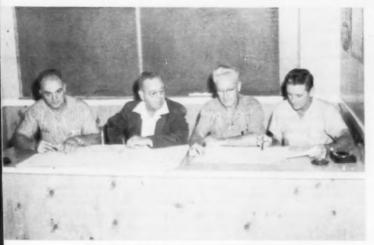


LIFT TRUCKS do the heavy work. In this operation, sheets ready for shearing are put on work bench. Pallets make easy work of handling sheet bundle



STAINLESS STEEL SPECIALTY ITEMS are checked periodically by foreman Raymond Powell (right) with specialist W. D. Toole

Departmental Responsibility



SATURDAY MORNING CONFERENCE is weekly ritual for department heads (1 to r) Andy Pappas, Steve Raymond, Art Clifford and Sid Raymond

EMPLOYEE BRAINING MANUAL is reviewed by personnel manager R. F. Anderson (John) and Seein Rasmond.

State-wide operation with ten branches, 1000 employees, 180 trucks and four major departments has grown big on a solid policy of internal cooperation, planned production, employee recognition and good public relations

In Nearly every large city there are sheet metal contractors who maintain staffs of 250 or more employees, belying any misconception that their industry is a small one, made up of small businessmen, However, there are few who can match the size of Giffen Industries, Inc., Coral Gables, Fla., which employs around 1000, serves the entire state and did over \$10 million in sales in 1957—a big business, in anybody's terms of reference. The firm is headed by Steve C. Raymond.

To handle this annual volume, the operation is divided into four departments: light gage sheet metal; metal fabricating (heavy gage sheet metal); stainless steel; and solar water heating. The solar water heater department fabricates and installs equipment which utilizes the sun's heat for domestic and commercial water heating applications. The light gage sheet metal, metal fabricating and stainless steel departments account for most of the sales volume.

To serve its customers, the company uses 180 trucks and maintains 10 branches, in Key West, Homestead, Miami, Miami Beach, Hollywood, Fort Lauderdale, West Palm Beach, Orlando, Tampa and Jacksonville. Each branch is headed by a manager who is not only responsible for the sales in the area covered by the branch, but also supervises all installations made in his territory. Each branch maintains a shop large enough to handle its estimated minimum work volume. Large orders are transferred to the main plant at Coral Gables and entered in the shop schedule.

Delivery of fabricated parts to branch offices is made by tractor trailers owned and operated by the company, or by railroad car. The company has a railway siding into its two-city-block plant.

During 1957, the company used approximately 1,500,000 lb of galvanized sheet metal, 150,000 lb of sheet copper, 200,000 lb of stainless steel sheets and 60,000 lb of aluminum.

Profits Put Back in Business

Giffen Industries, Inc. has grown steadily since it first became a partnership during the mid-1920's. It was incorporated in 1935. President Steve Raymond started to work as a mechanic in 1928. His ability to select responsible employees to head each of his departments and to guide them in coordinating their work with the activities of the other departments has contributed to steady and profitable growth. Profits have been turned back into the business to provide the best working conditions.

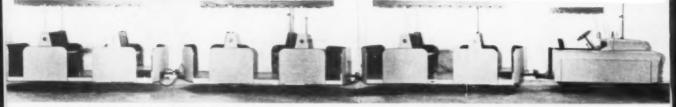
Latest types of equipment help maintain peak efficiency in the shop. The company insists on adequate working room around each piece of equipment.

Sidney N. Raymond heads the light gage sheet metal fabrication department, which occupies a shop of about 10,000 sq ft floor area. Sheet stock and completed work are stored in a nearby building, so the entire shop floor area can be utilized for productive work.

Ducts Made on Production Line

Bundles of sheet metal are delivered and moved by fork-lift trucks, speeding up the production of parts and minimizing the heavy work required of employees. This practice has helped to cut the accident rate.

The sheet metal department han-



STAINLESS STEEL TRACKLESS TRAIN was built for use as sight-seeing vehicle in public amusement park. The three-coach train seats 36 passengers and is drawn by a gasoline engine-operated tractor. All parts, including the roof and awnings, are made of stainless steel to prevent deterioration due to exposure to all kinds of weather

dles air conditioning duct work on a production line basis. Soon after detailed plans are furnished by the engineering department, the plans are studied by Manuel Lane, shop engineer, who specifies the size and number of each fitting and prepares shop drawings for non-standard fittings. Giffen Industries, Inc. does no air conditioning work as a prime contractor; it specializes in fabricating and erecting the air distribution systems for commercial and industrial air conditioning.

The light gage sheet metal department also handles sheet copper for roofing. Many of the odd shapes required for metal roofing panels are formed and pre-assembled in the shop.

Shop Geared for Heavy Work

The metal fabricating department, headed by Arthur E. Clifford, handles heavy gage metal work. Here the skills and experience of individuals are combined with modern manufacturing facilities and equipment, raw materials and mass production methods to assure the customer of a well-developed product. The metal fabricating department shop is in a 100×150 ft building.

Among the heavy duty tools used in the metal fabricating shop are 12 ft power shears, 12 ft power press brakes, high speed electronic welders and slip roll formers. Stainless steel products are fabricated and assembled in this shop but are moved to another building for polishing.

The stainless steel department, headed by Andrew Pappas, specializes in fabrication and installation of cafeteria and kitchen equipment.

Recently an order was received for a 36-passenger tram train for a transportation system in a municipal park. The body and hood on three coaches and the tractor are stainless steel. Drawings for this order and other specialty items were prepared in the company's engineering department. Duplicates of the drawings are made with an ozalid machine. Usually a minimum of six copies is made; one to the master file, one to the order file, two for the shop and two for the customer.

Maintain Even Work Load

To keep both the light gage and heavy gage sheet metal shops operating at top efficiency, standard items needed by the company during the year are fabricated and placed in stock as work loads taper.

This scheduling of work enables the firm to maintain approximately the same number of employees throughout the year. Some of the standard products manufactured are: gravity ventilators, ventilator bases, roof flashings, louvers, solar water systems, electrical panel and connection boxes, wire conduits and aircraft air scoops and ducts.

Motor Pool Keeps 8 Men Busy

Transportation can be a serious problem when numerous orders are being filled and many jobs are underway. The motor pool, under the direction of Foster I. Raymond. maintains 180 trucks, ranging from a bantam tractor for material handling on big jobs to 20 ton tractor trailer trucks. Mr. Raymond says clutch failures constitute the largest repair item; broken axles rank second on the repair list. When trucks assigned to branch offices break down, they are exchanged for trucks assigned to the main office and the repairs are made in the headquarters maintenance shop where eight fulltime employees are kept busy. This staff consists of two welders, three mechanics, one body and paint man, one tire man and a foreman.

A two-way radio system is planned, to facilitate dispatching trucks in the Miami area. (Homestead to Fort Lauderdale).

Between 20 and 25 trucks are replaced each year. Though some trucks last longer than others, all are depreciated at a five year rate.

Meetings Establish Cooperation

Keeping a business of this size running smoothly is a big job which calls for close cooperation among departments. Every Saturday the department heads meet with President Steve Raymond. Each department head airs his current or anticipated problems, which are discussed and resolved; schedules are suggested to coordinate the work with other operations planned.

Each department head conducts monthly employee meetings. These meetings not only give employees the satisfaction of knowing they contribute to the company's operation, but also have proved highly successful in reducing the firm's accident rates. Each meeting is planned in advance and the subjects discussed are based on employee interest and company policy.

Department heads and branch managers meet every three months. Meetings are limited to three hours, and each subject is planned in advance and allotted a specific time for presentation and discussion. This meeting is held at the company's main office in Coral Gables and is directed by Steve Raymond.

Training Is Standardized

Employee training in company policy and job performance is han-



BLUE PRINT COPYING MACHINE provides enough copies of all drawings required by various department and field superintendents. A minimum of six copies is made in every case



DETAILED SHOP DRAWINGS are prepared by Manuel Lane, who learned the trade first as a journeyman sheet metal worker, then as layout bench man and finally as a draftsman

dled by R. F. Anderson, personnel manager. Mr. Anderson, assisted by Steve Raymond, prepared a number of employee manuals designed to shorten the training period and to standardize the instruction of all employees performing the same work. These manuals cover types of buildings, principal terms used in the particular trade, duties of each person involved in performing the work, precautions that avoid wasting time and material, and some do's and don'ts on care and maintenance of tools and equipment.

Every effort is exerted to make employee working conditions as pleasant as possible. The office areas are completely air conditioned for year round comfort. The shop and other working areas are ventilated by large capacity wall exhaust fans.

Stress Employee Benefits

One of the employee services is a company-owned canteen, located near the center of the company's buildings. The canteen handles packaged food, soft drinks, cigarettes and coffee at prices below those of nearby restaurants. A mobile canteen makes the rounds twice a day.

Stock ownership is widespread within the organization, which has established a payroll deduction plan to enable employees to purchase stock by regular deductions. Approximately 55 percent of the company's stock is owned by employees.

The company makes weekly contributions to several health and welfare trust funds, under which wage-earning employees are covered by hospitalization and surgical benefits for themselves and their families. Salaried employees are covered under a hospitalization and surgical policy and a life insurance policy, both carried through the company at a nominal cost to the employee.

A chartered credit union provides a means of saving for employees through regular payroll deductions, and a place to borrow at a low interest rate.

Steve Raymond believes service is a goal, not a means to an end. It is relatively simple to obtain new customers, but to make a friend of each customer — one who voices his faith in the integrity of the company — is something else again. Every employee at Giffen Industries is schooled in the precept that he, insofar as his contacts with the public are concerned, represents the company and that one ill-timed or impolite remark might nullify years of effort in creating a good customer relationship.

Promotion Is Continuous

Sales promotion is continuous and is geared to maintain the annual volume to which the company has become adjusted. The company has adopted a symbol, a pixilated cartoon character named Giffy, who represents a journeyman about to begin work. The two-color cartoon is very effective as an identifying symbol. Giffy appears on most of the company's sales promotion literature.

One piece of literature used to introduce the company and its services is a 20-page, $8\frac{1}{2} \times 11$ in., two-color booklet which outlines the company's story and introduces each department head and the services provided by his department. Branch managers are also introduced and the branch and some of the work handled are described. Another section of this 20-page booklet is devoted to descriptions of the equipment used in the various shops and samples of the work produced.

Other sales promotion pieces include a four-page, two-color, $81/2 \times 11$ in. brochure describing products produced and shop equipment, a four-page, two-color brochure on application suggestions for some of the company's standard production items, an eight-page, $31/4 \times 61/2$ in. folder outlining specific jobs and how they were handled.

All these activities require a lot of guidance by Steve Raymond, but he still finds time to serve on the board of directors of the Sheet Metal and Air Conditioning Contractors National Association. In May he will complete his fourth year as a director with this association and will serve as local chairman for the annual SMACNA convention May 8-10 at Hotel Eden Roc in Miami Beach.

Thank the automobile for the



Big Market for Metal Roof Deck



THREE MAN CREW is kept busy assembling roof deck hoisted in bundles by mechanical equipment. Once laid, deck becomes working surface for crew

Elimination of distances as a barrier to spacious living and doing business has produced a rambling style of architecture which is made to order for metal roof decking. Let's take a look at the market, the material and the methods that contractors should study to capitalize on the trend

By Victor Pignolet* Manager of Sales, Roof Deck Div. Inland Steel Products Co. IT TOOK MANY YEARS to convince the American people that the automobile was here to stay. After the horseless carriage was recognized as a dependable method of transportation, we started to change our way of living to conform with this new influence. Speed and travel have erased many limitations, and distances are no longer as important as they used to be. Gone are the 30 and 40 ft residential lots of yesterday. People are moving out in the country and spreading out over half-acre plots, and new architectural trends have become established. With larger lots, homes are expanded sideways, rather than upward. We can't deny that the automobile is largely responsible for these changes.

If the automobile has had a major impact on our homes, it has had an equally tremendous influence on other buildings such as schools, stores, factories, etc. Three-story, concrete schools are symbols of the horse-and-buggy days. Stores have become one-story, rambling shopping centers with covered walks extending several city blocks. Manufacturers are moving plants out where property is relatively inexpensive and the size of these new plants is measured in acres, rather than stories. They literally buy a farm and place a roof over it. They build large parking areas for employees, who must now drive their cars to work.

New Look Creates Demand for Metal Deck

The point of this discussion of the automobile and its effect on architecture is that this new look in modern buildings has resulted in a tremendous demand for metal roof deck. When someone decides to build a five-acre plant, he wants to get it for the lowest possible price. Roof construction on long, low, rambling structures is a major cost factor.

Market researchers have estimated that 200,000 squares of roof deck were used in New York state in 1957.

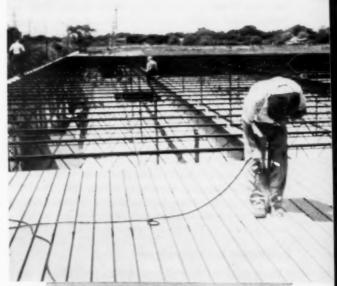
Three Basic Types

There are three basic types of roof deck: the closed rib type, open rib type and the long span deck.

The closed rib deck is fabricated so the rib is folded back upon itself. The open rib type has a space between the two sides of the rib. The space between the ribs varies with manufacturers, from \(\frac{3}{4} \) to \(2\frac{1}{4} \) in. The long span rib deck is designed for almost equal space between each side of the rib. This space also varies with manufacturers' designs. It will be as wide as \(3\frac{1}{8} \) in. in some cases. The main difference between the open rib and long span types is the depth of the rib. While the open rib type is generally about \(1\frac{1}{2} \) in. deep the long span deck will be as deep as \(4\frac{1}{2} \) in. Each type is available in either galvanized or painted styles.



DECK SHEET IS SPOT WELDED to each purlin, 12 in. apart



LAYING COMPLETE BAYS of roof deck sheets makes welding operation more efficient. While welder tacks deck to the purline, other bays are readied by laying crew

^{*}This material is taken from an address by Mr. Pignolet to members of the New York State Sheet Metal Contractors Association

The advantage of open rib over closed rib deck is that it has a wider edge, better distribution of metal and is structurally more efficient. Pound for pound of steel, the open rib deck carries more load than the closed rib type. The disadvantage is that many architects object to the wide rib for support of insulation. They are afraid that running a wheel barrow over the roof during construction will break the insulation and damage the roof. As a result, bonding companies specify hardboard type insulation for open rib decks and for glass fiber and other soft types of insulation they insist on 1 in. thickness, whereas they are satisfied with a closed rib type of deck with ½ in. of glass fiber insulation bonded to it.

Span Determines Type Used

Long span deck materials are used in lengths up to 20 ft for normal roof loads. Open rib decking is satisfactory in lengths up to 12 ft. The closed rib types shouldn't be used where spans are more than 8 ft, 4 in.

Most roof deck is made in standard 18, 20, and 22 ga; however, steel deck is available in all gages down to 12. Load tables are available for each type.

Steel decks vary in width. Some are 12 in., some 18 in. and some as wide as 24 in. Welding specifications call for spot welding on 12 in. centers. Thus, 24 in. wide decking reduces the number of welds needed. Open ribs make it possible to weld the deck from the top.

Rust Problem Solved

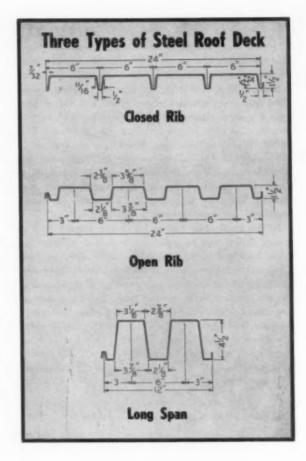
The roof deck industry has had problems with painted decking. The deck is usually furnished from the factory with a primer paint which does the job. However, in cases where the decking was not used immediately after shipment to the job site, rust sometimes formed after exposure to the weather, especially at points where the material had been damaged or scratched in shipment. Currently steel deck is being furnished with a baked enamel finish over a bonderized base to solve the problem of rust due to damage and exposure.

As a general rule, roof deck is engineered to fit each specific job. When steel joist or steel frame drawings can be supplied, the manufacturer's engineering department prepares placement drawings for the steel roof deck showing the location and length of each roof deck plate sent to the job. Each deck length is identified by a letter stamped on the side so it can be read in the stack. Workmen use the placement drawing to lay the deck. The layout drawings show where laps occur over purlins, making the welding process easier.

Installation Is Uncomplicated

Basic tools required for erection are: an electric arc welder, a cutting torch and hoisting equipment, which may be rented.

Use of metal roof deck eliminates wasted time spent in waiting for particularly good weather, or for the right



temperature or for the deck to dry out to apply insulation and other built-up roofing materials.

Roof deck can be erected on fairly large jobs by a five man crew, comprised of a welder, two men laying the deck and two men handling it. Hoisting equipment puts the deck on top of the purlin platform, or the deck can be pushed by hand over the edge of the purlin frame. Where a concrete block wall-bearing job is encountered, it is important to exercise care against overloading the wall and causing it to buckle. A three man crew is adequate for smaller jobs.

Develop Estimating Formula

A formula used by F. J. A. Christiansen Roofing Co., Inc., Milwaukee sheet metal contractor, is useful for estimating a steel roof deck job. Mr. Christiansen figures labor at one man-hour per square of roof deck on jobs of 100 or more squares. This includes unloading from the truck or railroad car, hoisting, placing and welding, plus the placing of standard accessories such as ridge caps, etc. On jobs of 100 squares or more, the price should not exceed \$5 a square to be competitive. Prices can vary in different areas, under different circumstances, but an estimating procedure should be established, because the market for metal roof deck is growing fast.



Tips on Hot Gas Welding Create New Uses for Plastics

Pioneer work in laboratories and welding shops has turned up some very satisfactory techniques which contractors can apply to take advantage of a fast-growing market for plastic materials

Welding of Metals these days is a recognized technique which plays an important role in the sheet metal shop. Nobody doubts today that a metal joint, although welded, will stand up satisfactorily, provided it was made by a proficient welder.

With the rise in importance of plastics to sheet metal contractors came an obvious need for development of fabrication techniques comparable to the welding of metals. The pioneer work in the welding of plastics was carried out in the laboratories and shops which were principally engaged in the welding of metals. Reviewing the progress made since 1937, when the welding of plastics was first attempted, it is safe to say that welding of plastics is now recognized as a standard method of fabrication.

Certain factors should be known about plastics so that such welding will be successfully achieved. It should not be attempted haphazardly. There are a great many plastic materials and a beginner usually has difficulties in finding his way. A number of manufacturers of raw materials prefer to give proprietary names to their products which may have many advantages when referring to a specific product, but it complicates the situation for newcomers. For the present, a simple classification dividing plastics into thermosetting and thermoplastic materials will be sufficient.

Thermosettings Can't Be Welded

Thermosettings are generally better known than thermoplastics as they have been in commercial production much longer. Thermosetting materials pass through a liquid or plastic stage in the course of their manufacture, but once they set, by either polymerization or condensation, they can no longer be rendered plastic by further chemical or physical treatment. This explains why thermosetting materials cannot be welded, although most of them can be cemented.

Thermoplastics become plastic when subjected to heat and pressure and can, therefore, be welded, but there are thermoplastic materials which can be welded only by the use of special methods.

Some thermoplastic materials change their structures and become thermosettings under prolonged heating in the presence of oxygen or when irradiated with ultraviolet light.

Weldability Will Become Acceptance Factor

So far, only a limited number of thermoplastic materials has assumed any importance for applications by welding. New materials always are judged on their merits, and the time is not too far away when weldability will be one of the deciding factors to be taken into consideration before accepting a new thermoplastic material.

The process of welding makes it possible to extend the size of all-plastic assemblies almost infinitely, provides a means of producing shapes not otherwise obtainable, and permits repairing and rebuilding damaged thermoplastic components.

Before beginning to weld plastics, be certain the filler

rod is the same material as the plastic to be welded. Sometimes a rod which is slightly more plasticized than the material to be welded is advantageous because it gives somewhat greater control over the weld contour. However, welds with plasticized filler rods often show a slight reduction in chemical resistance and a small loss of dielectric strength.

Pre-Heat Rod and Surfaces

In order to produce uniform coalescence the surfaces or edges to be welded and the filler rod must be pre-heated with the welding torch. The filler rod cannot adhere to the parent material if the surfaces have not been sufficiently pre-heated and melted. Overheating, on the other hand, causes a darkening of the material and too much sub-surface melting.

Two variable factors make it possible to adjust the process to the particular properties of the plastic to be welded. These factors are the amount and kind of pressure to be applied to the filler rod and the angle at which the weld is made. For welding polyvinyl chlorides, for example, the filler rod should be almost perpendicular to the weld piece, while for the softer polyethylenes the best angle is 45 deg.

Weaving Prevents Undercutting

A slight weaving motion of the hot gas stream prevents under-cutting. Should failure occur due to overheating or underheating, the affected parts of the weld must be removed before welding continues. With multi-level welds, used when material thicknesses are greater than 5/32 in., the single beads should be deposited in such a manner that continuous contours are obtained. A final sealing run is used whenever possible.

The easiest manner of welding is, of course, in the downhand position, yet welding in the overhead or in a vertical position presents no difficulties as long as the freedom of manual movement remains unimpaired.

Filler Rod Is Bonded to Material

An essential difference between metal welding and plastics welding is in the extent of joining between the filler rod and parent material. Complete fusion of the two is characteristic of are welding. With plastics, a simple bonding process takes place between filler rod and material, since only the actual meeting surfaces melt. The other parts, such as the center of the rod, remain relatively unaffected and rigid. The slight pressure applied to force the filler rod into its "bed" (a pressure reminiscent of the old blacksmith's method of joining two pieces of metal, or the pressure needed in resistance welding) has the effect of combining the melted surfaces into a homogeneous mass. In this manner, a bonded, integral weld is produced.

When the surfaces of the weld are too cold, proper penetration of the filler rod is impossible. In a proper bonding, the filler rod will flow fully into the weld bed. Overheating is characterized by scoring of the filler rod and the area around the weld bed. Care should be taken in welding polyvinyl chlorides to prevent overheating, which will make the surface too liquid and cause the filler rod to slide in the weld bed. Also, during cooling, the filler rod will have a tendency to raise itself out of the bed.

Allow Weld to Cool Before Testing

To determine the soundness of the weld and the thoroughness of surface bonding, the operator may attempt to pull the end of the welding rod from the welded piece. It is important that such a test be made only after the weld has cooled completely. If the weld is good, the filler rod should tear off at the end of the weld; a poor weld will allow the rod to be pulled out of its bed.

Faults arising from overheating, insufficient bonding, porosity in the filler rod, poor starts and failure in the roots will affect the quality of the weld. Most of these faults can be detected by the manual test described in the preceding paragraph or by visual inspection, either under a spotlight with a magnifying lens, or by holding the weld against the light. Proper training of operators can overcome most of these faults.

Follow the Rules

Just as there are rules for working with any other material, so also are there specific rules to follow when working with polyethylene. Understanding and recognizing these basic principles will make polyethylene far more adaptable and therefore, far more valuable to anyone undertaking the working of this plastic.

Two things should be remembered in thread cutting. The first is to use variable stocks and dies without lubricants, and the second is to provide a slightly greater depth. This is necessary because polyethylene expands once compression is relaxed,

It should be noted that although polyethylene lends itself to threading, the fabricator should not make widespread use of threading as a fabrication method. Like all other thermoplastics, polyethylene is sensitive to notches, and threads, basically, are a series of notches.

Use Any Slow-Speed Drill

Drilling of polyethylene can be performed with any drill, hand-operated or motor-driven, whether it is primarily used for metals or for wood. Too great a speed will cause softening of the material and smearing. Drill speeds up to 3000 rpm are quite satisfactory.

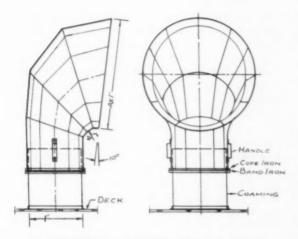
When routing polyethylene, conditions should be similar to those required for routing wood, acrylates or rigid polyvinyl chloride.

[[]Summarized from Plastics Weldor and Fabricator by permission of American Agile Corp.]

Use simplified method to lay out a

Four-Section Ship Type Ventilator

... following accepted design principles which apply to all sizes, and developing the pattern as four separate layouts



1 STANDARD SHIP VENTILATOR has inlet diameter twice the pipe diameter, throat radius one-fourth the pipe diameter and 10 deg pitch at mouth

THE NUMBER OF SECTIONS in a ship type ventilator will depend on its size. However for good design, making the inlet diameter twice that of the pipe diameter and the throat radius one quarter the pipe diameter, with a 10 deg pitch at the mouth, is generally accepted throughout the ship-building industry. Figs. 2A and 2B show that all four sections are different; therefore, each section must be a separate layout problem. In applying the practical simplified method it is not necessary to draw the end view, except for clarification of shape.

For any size ventilator, multiply the given dimensions by the required pipe diameter. If a 12 in, diameter ventilator is required, the mouth diameter would be doubled to 24 in, and the throat radius divided by 4 to obtain a 3 in. measurement. The given 10 deg pitch at the mouth is a constant.

Given the front and end views of a ship type ventilator, the following is a step-by-step analysis to the pattern problem solution: Note: The layout method for the end section and one center section is given. Layout procedures for the other center sections are identical.

Front View Drawing, Fig. 2A-

a) Draw the 1 in. horizontal line MN. From points M and N draw lines above and perpendicular to line MN. From point N, measure up ½ in. and draw a line perpendicular to and to the right of the vertical line drawn from point N. Measure ¼ in. to the right on this horizontal line and locate point R.

b) Extend a vertical line 1 in. below point R. From point R, draw a line to a point 1/8 in. to the left of the base of the 1 in. line, as shown. With R as center, and given ½ in. radius, draw an arc to intersect the angle line above point R. Label this point 5'. From point 5', measure up the angle line the given 2 in. dimension, which is the diameter of the mouth. Mark the point 4'. From point R, draw a vertical line at 90 deg to the horizontal line. Set a compass at a radius of 1½ in. (the 1 in. diameter of the pipe plus the ½ in. throat radius). With point 4' as center, draw an arc across the vertical 90 deg line from point R, and mark the point 0.

c) With point 0 as center, and radius 1½ in., draw a 90 deg arc to the left of point 4'. Divide the ¼ in. throat arc into 4 equal spaces. Label the points 1, 2, 3 and 4. From point R, draw a line through point 2 to intersect the vertical line above point M. The intersection is point 1'. From point R draw lines through points 3 and 4 to intersect the 1½ in. radius arc. Identify these points as 2' and 3'. Draw the lines 1'.2', 2'.3' and 3'.4' on the back

of the ventilator. Next, draw lines 1-2, 2-3, 3-4 and 4-5' on the throat. Mark the developed sections 1, 2, 3, and 4.

d) Bisect line MN to locate the center. Mark this point 3". With point 3" as center and $1\frac{1}{2}$ in. radius, draw an arc below line MN from points M to N. Divide this arc into 6 equal spaces. Through these points, draw lines perpendicular to and intersecting lines MN and 1'-2. Mark the points of intersection with line MN as points 5", 4", 2" and 1". Label the vertical work lines above line MN as E, F, G, H, J, K and L as shown.

e) Bisect line 4'-5'. Mark the point as X. With point X as center and radius X-4', draw a half circle to the right of line 4'-5'. Also, with point X as center and ½ of diameter line MN as radius, draw a half circle to the right of line 4'-5'. Divide the larger circle into six equal spaces. Label the points as 11, 12, 13, 14 and 15 as shown. Through these points, draw lines perpendicular to and intersecting line 4'-5'. Mark the distance from point 11 to line 4'-5' as work line A. Label the distance from 12 to line 4'-5' as line C; point 13 to line 4'-5' is line D. Distance B is half the difference between distance A and distance C.

Pattern for Section 1, Fig. 3-

a) Calculate the circumference of the given 1 in. diameter by multiplying by the constant 3.14; thus, $3.14 \times 1 = 3 \frac{1}{8}$ in.

b) Draw the 3 1/8 in. horizontal line NN. Divide the line into 12 equal spaces and identify the points (from left) as N, 1", 2", 3", 4", 5", M, 5", 4", 3", 2", 1" and N. Through the points draw lines above and perpendicular to line NN.

c) Working from the front view (Fig. 2A) transfer work line distance L to the lines drawn from points N, and mark the terminal points N'. From Fig. 2A, transfer work lines K, J, H, G, F and E to each set of corresponding lines on Fig. 3, and mark each corresponding set of points as 1', 2', 3', 4' and 5'.

Through the developed points draw the pattern outline for section 1.

Drawing for Section 4, Fig. 7-

a) Section 4 (Fig. 2A) will become Fig. 7. Line 5'-4' (Fig. 2A) can be used as the horizontal line of Fig. 7 by drawing a 2 in. horizontal line and identifying it as line 1-7. Line 4-3' (Fig. 2A), when transferred to Fig. 7, is identified with the figures 8-8. Bisect line 1-7 and mark the center point 0. With 0 as center, and radius 0-1, draw a half circle below line 1-7. Divide the half circle into six equal spaces, and number the points 2, 3, 4, 5 and 6. Through the points, draw lines perpendicular to and intersecting line 1-7.

b) Bisect line 8-8, and mark the center point 0'. Through the point, draw a center line above and perpendicular to line 8-8. Also draw lines from both end points 8 above and perpendicular to line 8-8. From Fig. 2A, set a compass at line length C, and with both points 8 (Fig.

7) as centers, transfer the line length to the perpendicular lines. Draw the line Y'Y'. Mark the intersection of line Y'Y' and the center line as point 11.

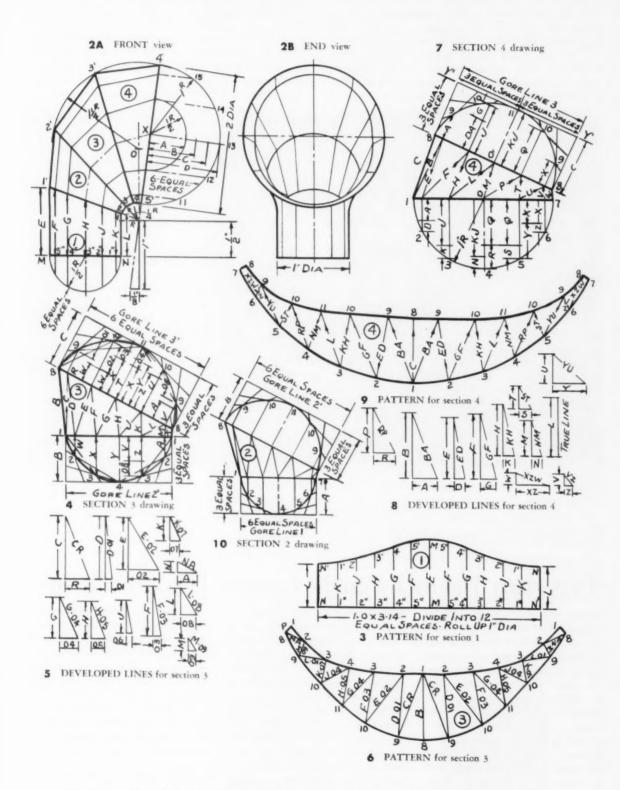
c) Divide distance C (both lines 8-Y') into 3 equal spaces. From point 11 draw lines to the equally spaced points on both lines. Divide the line Y'Y' into six equal spaces. From point 8 (right side), draw lines to the equally spaced points on the right of point 11. Mark the intersection points of these two sets of lines with the numbers 9 and 10. Draw lines from left point 8 to the equally spaced points on the left of point 11 on line Y'Y'. Mark the intersection points of these two sets of lines also with the numbers 9 and 10. From both sets of points 9 and 10, draw lines perpendicular to and intersecting line 8-8. Draw the work lines C, B, E, F, H, L, M, P, T, U, V and W from the intersecting points located on lines 1-7 and 8-8.

d) Subtract the length of the line drawn from point 9 on the top circle (identified as length A) from the length of the line drawn from point 2 on the bottom circle, and mark the difference in line lengths as D. Subtract the line drawn from point 2 on the bottom half circle (line DA) from the line drawn from point 10 on the top half circle (line J), and mark the difference in line lengths as G. Subtract the line drawn from point 10 on the top half circle (line J) from the line drawn from point 3 on the bottom half circle, and mark the difference in line lengths as K. The line drawn from point 3 on the bottom is equal in length to the line drawn from point 11 on top; therefore, line L (center section) is a true length line. The distance of the line drawn from point 11 at the top (line KJ) is subtracted from the line drawn from point 4 on the bottom half circle, and the difference in line lengths is marked N. Subtract the length of the line drawn from point 10 at the top (line Q) from the line drawn from point 4 on the bottom half circle, and mark the difference in line lengths as R. The line drawn from point 10 at the top (line Q) is subtracted from the line drawn from point 5 on the bottom half circle, and the difference in length is marked as S. Subtract the length of the line drawn from point 9 on the top (line X) from the lines drawn from points 5 and 6 on the half circle at the bottom, and mark the differences in line lengths as distances Y and Z.

Pattern for Section 4, Fig. 9-

a) Draw a vertical line and establish point 1 at the bottom. With work line C (Fig. 7) as radius, and point 1 (Fig. 9) as center, draw an arc on the vertical line above point 1, and mark the point 8. Transfer line B and rise distance A from Fig. 7 to the vertical and horizontal legs of a right angle. The hypotenuse line BA is the developed line. With point 1 (Fig. 9) as center and radius BA, draw arcs to the right and left of point 8. With arc 8-9 on the top ellipse (Fig. 7) as radius, and point 8 (Fig. 9) as center, cut both arcs BA and mark the points as 9.

b) Line E and fall distance D are transferred from Fig. 7 to the vertical and horizontal legs of a right angle.



Note: drawings have been reduced 15 percent in size for reproduction on this page

The hypotenuse line ED is the developed line. With point 9 (Fig. 9) as center and radius ED, draw arcs to the right and left of point 1. With equal space 1-2 on the bottom half circle (Fig. 7) as radius, and point 1 (Fig. 9) as center, cut both arcs ED and mark the points as 2.

c) The line F and the fall distance G are transferred from Fig. 7 to the vertical and horizontal legs of a right angle. The hypotenuse line GF is the developed line. With point 2 (Fig. 9) as center and GF as radius, draw arcs to the right and left of point 9. With arc 9-10 on the top ellipse (Fig. 7) as radius and point 9 (Fig. 9) as center, cut arcs GF and mark the points as 10.

d) Transfer line H from Fig. 7 to the vertical leg of a right angle, and fall distance K (Fig. 7) to the horizontal line. The hypotenuse line KH is the developed line. With points 10 (Fig. 9) as centers and radius KH, draw arcs to the right and left of points 2. With equal spaces 3-2 (Fig. 7) as radius and points 2 (Fig. 9) as centers, cut

both arcs KH and mark the points as 3.

e) From Fig. 7 set a compass at line length L (true length line) and with points 3 as centers, draw arcs to the right and left of points 10. With arc spacing 10-11 on the top ellipse (Fig. 7) as radius and points 10 (Fig. 9) as centers, cut both arcs L and mark the points as 11.

f) The line M and the fall distance N are transferred from Fig. 7 to the vertical and horizontal legs of a right angle. The hypotenuse line NM is the developed line. With points 11 (Fig. 9) as centers and radius NM, draw arcs to the right and left of points 3. With equal space 3-4 on the half circle (Fig. 7) as radius and points 3 (Fig. 9) as centers, cut arcs NM and mark the points 4.

g) Line P and fall distance R are transferred from Fig. 7 to the vertical and horizontal legs of a right angle. The hypotenuse line RP is the developed line. With points 4 (Fig. 9) as centers and radius RP, draw arcs to the right and left of points 11. With spacing 11-10 on the ellipse (Fig. 7) as radius and points 11 (Fig. 9) as centers, cut arcs RP, and mark the points as 10.

h) Transfer line T and fall distance S from Fig. 7 to the vertical and horizontal legs of a right angle. The hypotenuse line ST is the developed line. With newly-developed points 10 (Fig. 9) as centers and radius ST, draw arcs to the right and left of points 4. With arc 4-5 on the lower half circle (Fig. 7) as radius and points 4 (Fig. 9) as centers, cut arcs ST and mark the points as 5.

i) The line U and the fall distance Y are transferred from Fig. 7 to the vertical and horizontal legs of a right angle. The hypotenuse line YU is the developed line. With points 5 (Fig. 9) as centers and radius YU, draw arcs to the right and left of newly-developed points 10. With equal space 10-9 on the ellipse (Fig. 7) as radius and points 10 (Fig. 9) as centers, cut both arcs YU and mark the points as 9.

j) Line V and fall distance Z are transferred from Fig. 7 to the vertical and horizontal legs of a right angle. The hypotenuse line VZ is the developed line. With newly-developed points 9 (Fig. 9) as centers and radius VZ, draw arcs to the right and left of points 5. With equal spacing 5-6 on the half circle (Fig. 7) as radius and points 5 (Fig. 9) as centers, cut arcs VZ, and mark the points as 6.

k) Transfer line W from Fig. 7 to the vertical leg of a right angle, and the line marked XZ drawn from point 6 (Fig. 7) to the horizontal leg. The hypotenuse XZW is the developed line. With points 6 (Fig. 9) as centers and radius XZW, draw arcs to the right and left of newly-developed points 9. With equal spacing 9-8 on the top ellipse (Fig. 7) as radius and points 9 (Fig. 9) as centers, cut arcs XZW and mark the points as 8.

1) Set a compass at line length 8-7 (Fig. 7) and with points 8 (Fig. 9) as centers, draw arcs to the right and left of points 6. With equal space 6-7 on the half circle (Fig. 7) as radius and points 6 (Fig. 9) as centers, cut arcs 8-7 and mark the points as 7.

Through the developed points, draw the pattern outlines and mark the patterns for fabrication.

To lay out sections 2 and 3 (Fig. 2A), follow the methods described to construct section 4 (Fig. 7) and to lay out the pattern for section 4 (Fig. 9). Figures 4, 5, 6 and 10 provide line development details for sections 2 and 3.

Add allowances for seams and joints, lay out the necessary rivet holes and cut the patterns for fabrication.

Porcelain Enamel Panels Convey Luxury Theme

VISITING ROYALTY are living in an atmosphere of luxury in Chicago's Conrad Hilton Hotel Imperial Suites 26 floors above street level, due largely to the role played by porcelain enamel panels, Designed for use by important diplomatic and social personalities, the penthouse walls contain 5700 sq ft of insulated panels as well as 1900 ft of non-insulated porcelain enamel for soffit, fascia and coping. The 587 insulated panels are comprised of 16 ga porcelain enameled face, 2 in, thick glass

"foam" insulation and 16 ga galvanized steel interior panels. The U factor of the insulated wall sections is 0.20. Panels weigh 5 lb per sq ft. Three colors, in semi-matte finish were used: white and two shades of gray. Panels are mounted on steel framework and all joints are sealed against the weather. Caulking tape was put in the joints as a support for the final $\frac{3}{8}$ in. deep, $\frac{1}{4}$ in. wide bead of caulking. Each suite has a 40×50 ft living room, a dining area, bar, kitchen, two bedrooms and

three bathrooms. The master bedroom leads out to a terrace garden.

The porcelain enamel panels were selected mainly—in addition to their decorative qualities—because of their lightness in weight, insulating properties and ease of erection.

The panels were installed 3 ft outside the main masonry wall structure, and stiff winds from the lake complicated erection of the 4×6 ft panels.

Ingram-Richardson Mfg. Co. fabricated and erected the walls.

DOES A HONEYBEE HAVE AN ANSWER TO CANCER?



Mouse and man, worm and wasp, pig and protozoa—these are some of the twenty-eight living things used in the American Cancer Society's nation-wide research program.

Scientists rely most — in 189 projects — on man; next comes the mouse — in 139 studies — and there is even a honeybee helping one scientist in his search for facts that may save the quarter of a million Americans now dying each year of cancer.

Many organisms. Many laboratories. Many hundreds of scientists. Together they make up a balanced program of research with freedom and flexibility, reaching across the country and across scientific

disciplines, to tap the best minds and the best ideas.

From these twenty-eight organisms science is getting facts that may save more lives tomorrow. But what of today? What of you?

With early diagnosis, half of those with cancer can now be cured if treated promptly. If you have cancer, you may well be saved — but only if you give your doctor a chance. Go to him for an annual health checkup... not because you feel ill, but because you feel good and want to stay that way.

The worm and the wasp, the pig and the protozoa will provide the answers for tomorrow: for today, see your family doctor.



AIR CONDITIONING IS PROFITABLE BUSINESS!



V.A. McLaughlin and M. McDougall check final balancing of this Carrier unit, one of 18
installed after building was erected. Design calls for a 150-ton cooling tower to serve all units.

"We're getting a 40% yearly increase in business since we concentrated on air conditioning"

Reports Victor A. McLaughlin, President, Gotham Air Conditioning Corp., New York City, shown right, above, with his assistant, Mr. McDougall.



• A 7½-ton Carrier unit charged with "Freen" cools each floor at the Farrell Lines Building. 26 Beaver St., New York City, in an installation made by Gotham Air Conditioning Corp. Ductork hung from the ceiling distributes air throughout the floor. Shown above in Mr. McDougall adjusting an air cutlet critical.

"In 1951 we decided to concentrate on air conditioning, and ever since, we've increased our business 40% every year," says Mr. McLaughlin. "Our market is everywhere—everyoffice, every floor, every loft—every building ever built that is not yet air conditioned. In New York City landlords and builders know they must air condition to keep old tenants and get new ones.

"We generally use Carrier equipment charged with Freon* refrigerants. We know we can depend on 'Freon'—it's dry, easy to handle and completely safe."

You can find out more about the profitable market for air conditioning from Du Pont. Du Pont furnishes complete marketing and technical services for you to use—a good reason why it pays to specify

and insist on "Freon" refrigerants. For more information, contact your complete air conditioning and refrigeration wholesaler or write: E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Division 174, Wilmington 98, Delaware.

Always ask for "Freon" from the wholesaler who displays this sign . . .



FREON REFRIGERANTS

*Freon and combinations of Freon- and F- followed by numerals are Du Pont's registered trademarks for its fluorinated by drocarbon refrigerants.



BETTER THINGS FOR BETTER LIVING



USE PENN'S NEW RIMSET THERMOSTAT TO HELP SELL HEATING-COOLING JOBS

No squinting

Extra large stationary dial face with big numerals make RIMSET today's easiest-to-read thermostat.



No leveling

Installation is easier and accurate operation is assured because leveling is not necessary.



No chattering

Unlike other thermostats, RIMSET does not chatter to cause "on-off" operation when vibration occurs.

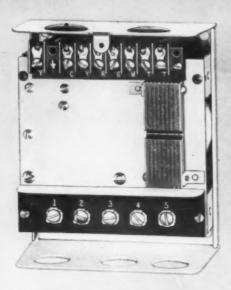


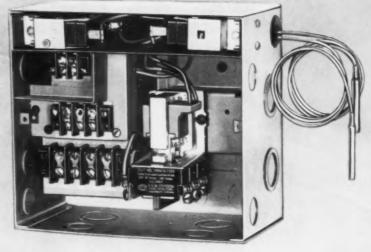
There's nothing else like it...it has accuracy, dependability, extra convenience and blendable beauty

You get extra sales power at no extra cost with Penn's RIMSET thermostat. It has features your customers want and can't get with any other thermostat. It is easier to set ... you simply dial the rim... the scale remains stationary and is always "easiest-to-read". It has snap-acting contacts to eliminate "on-off" operation caused by vibration. And, it has modern styling and beauty to blend with any room decor.

With the Penn RIMSET thermostat unit, various interchangeable sub-bases are available for 12 different heating and cooling jobs! On your next installation, use Penn's RIMSET... the thermostat that helps close sales then keeps customers sold.

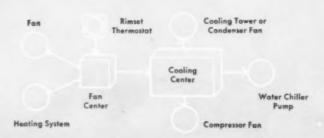
And to complete your control "package" here's the...



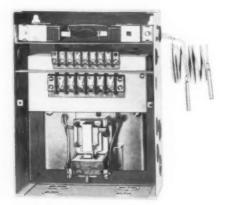


Fan Center and Cooling Center

The Fan Center is 6" high and $4\frac{1}{2}$ " wide. It combines a transformer with a fan relay, reset relay and heating relay (one or all). The Cooling Center is 7" high and 8" wide. It combines pressure controls, contactor, auxiliary relay for (a) water chiller pump, (b) tower pump or fan relay or both, (c) condenser fan relay. Diagram illustrates functions.



NEWEST CONTROL CENTERS for Heating-Cooling from Penn!



System Center

Only 11" high and 8" wide, this compact unit combines all the control functions of the Fan Center and Cooling Center. The center panel in this unit is easily removed for ease in wiring.

Compact Penn residential Control Centers, with factory-wired internal circuits, are designed to save installation time

Here are the newest advancements in Control Center engineering design! Penn offers two basic types for all-sized residential units through 40 amps., single phase, 30 amps., three phase. For air conditioning systems with remote condensing units, a "Fan Center" controls the air handling equipment while a "Cooling Center" controls the remote condensing unit or water chiller. For self-contained systems, the "System Center" electrically interlocks in one unit all heating-cooling functions.

These Control Centers are designed to operate with the Penn RIMSET thermostat to give your customers the finest year 'round air conditioning performance. Get the complete story... write to Penn Controls, Inc., Goshen, Indiana.

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.



Booklet Tells Story of Quality Sheet Metal Work

... to architects, consultants and plant engineers

BECAUSE OF THE nature of the business and its users, sheet metal contractors specializing in commercial and industrial work sometimes have difficulty in conducting a sales promotion program that achieves the desired results. Recently, the A. H. Lumm Co., Toledo, decided to tell its customers and prospects about the history of the company, plant equipment, craftsmanship and services. The management felt that compiling this information in one easily-read brochure describing the services available would strengthen the company's position with architects and mechanical engineers who write specifications for new construction. as well as with chief engineers of industrial plants who seek contractors to build and install the equipment needed to meet changes in production techniques and to handle replacement work.

Booklet Reflects Quality

An advertising agency was selected to produce this sales promotion piece. The final product is an 18 page booklet. The booklet utilizes maximum pictorial presentation and a minimum of written copy. Each photograph has a caption that clearly explains the points illustrated. Where space is available, pertinent information in large type describes the high-

lights brought out by photographs grouped to illustrate a specific subject on a single page or on two facing pages.

For easy reading, 12 point bold face type with 6 points space between lines was used.

(These lines are printed in 12 pt bold face type.)

The text gives short descriptions of each department operated by the company. The booklet leads off with a brief history of the founding of the company by Conrad F. Lumm, grandfather of the present owners: Al, Bill and Bob, sons of A. H. Lumm, Sr. Each of the present officers is a graduate engineer. Al is president; Bill, vice president and treasurer; and Bob, secretary.

Market Grows Constantly

The company's market has expanded outside the Toledo area to the point where the firm "covers the Midwest" as illustrated by a repro-

Tell Others About Your Successful Ideas

by writing to: Editor, American Artisan, 6 N. Michigan Ave., Chicago 2, Illinois. duction of a map of the United States showing the area served plus 12 photographs of jobs completed throughout the area. The company currently requires 24,000 sq ft of shop area and 5000 sq ft of office space to handle the work load.

The brochure was mailed to over 500 customers along with a covering letter written by the person best known to the customer. The booklet also went to prospective customers along with quotations and proposals.

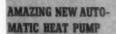
Money Well Spent

The brochures cost about \$4.50 each, but Bill Lumm, the treasurer, is convinced it was a good investment because "It truly represents our company's way of doing business."

The entire organization is portrayed in its proper environment to describe its skills and capabilities. Photographs of shop operations, onsite erection techniques and various specialties fabricated to customer specifications are spotted throughout the booklet. Testimonials and a list of well-known customers are presented effectively.

The brochure was designed to convey quickly to business sources the ability of the company to handle any type of work connected with sheet metal contracting as attested by 60 years of progress.

ABOUT THE SALES YOU LOSE BECAUSE YOU DON'T HAVE THE RIGHT EQUIPMENT AT THE RIGHT TIME? THEN READ THE RIGHT HAND PAGE



Two, three and five ton sizes. The three and five ton units have two compressors, two stage control. Heats and cools without fumes, fire, fuel or water! Compact, easy to install, completely self-contained. Most promising and profitable unit you ever sold.





Handsome, economical, delivers yearround comfort. All models adaptable to
summer air conditioning with Typhoan
"A-Type" cooling coil and air cooled
condensing unit. Cooling coil adjusts to
exact dimensions of furnace, eliminates
jutting edges. Completely serviced
through the front. "Even-Temp" assures
maximum comfort, "Tri-Fire", three
stage firing geared to the weather, assures maximum economy.

CAS OR OIL FIRED WEATHER SELECTOR FURNACE



For today's competitive market, Typhoon puts you at your selling best with the exciting new two, three and five ton true heat pumps. The amazing year-round units that heat and cool without fumes, flames or water. or the attractive, space saving gas and oil fired furnaces, with capacity range of 75,000 to 200,000 BTU/HR, readily adaptable for split system air cooling, tool Take the new Weather Selector. Handsome enough to go in any room, it's designed to permit air return at top, bottom, or either side to make placement easy in the smallest closet or the roomiest basement. Typhoon furnaces have exclusive "Even-Temp", which regulates air volume automatically between winter heating and summer cooling. No matter who you sell, you've always got these extras with Typhoon; extra value, extra quality, extra flexibility—and the most complete line of packaged products in the air conditioning industry—all the equipment you need to build new and better business immediately. Write today for full information.



Typhoon Air Conditioning Company 505 Carroll Street, Brooklyn 15, N. Y.

Please send me full product information on the Typhoon line.

Name____

Address

City_____Zone__State_____

Watch Out for Warranties in Conditional Sales

Courts hold that dealer-contractors' expressed obligations for equipment performance must be fulfilled before acceptance by the buyer is recognized

When a judgment for \$2730.23 was rendered against a purchaser of year 'round air conditioning equipment in an action brought in a southern state by a dealer-contractor for the unpaid contract price, the purchaser appealed.

The dealer-contractor insisted he had lived up to his agreement to furnish and install the system in the home according to the contract, and was entitled to be paid. The purchaser defended that according to the contract, the system was installed for the specific purpose of improving the health of the purchaser's son and that the dealer-contractor had expressly agreed and warranted the equipment would do so, by completely removing all dust, pollen and other harmful substances from the air. This, he maintained, the system

Buyer Sees Implied Warranty

failed to do.

In his appeal, the purchaser contended further that the contract carried an implied warranty of quality and fitness. He also charged that it had been the duty of the dealercontractor to remove the equipment before bringing suit in order that any damages awarded for non-payment might be reduced by the value of the repossessed unit.

At the trial the purchaser produced manufacturer's literature which stated that the unit would produce "clean, helpful comfort" and "help provide relief for many respiratory allergy sufferers"; that it is "kitten quiet," and that it "filters out dirt, dust and pollen."

Unfortunately for the buyer, how-

ever, the contract also provided: "material and fixtures are not warranted by the air conditioning dealercontractor nor shall he be responsible for damages after installation."

Sale Is Conditional

A few months ago, the Supreme Court in that state affirmed the judgment in favor of the dealer-contractor for the unpaid balance under this contract. The court said, "This purchaser would have us believe it was a requirement of the contract and of law generally that the contractor recover possession of the goods to mitigate the buver's damages. There was simply no requirement to this effect in the contract. The contract is clearly one of conditional sale. It merely provided that title was to remain in the seller who had the right to enter and remove the materials if payments were not made. There is nothing in our statutes or decisions which prohibits a conditional seller, on default of the buyer, from bringing an action for the purchase price, without repossession, treating the contract as executed on his part."

Warranty Is Specific

A somewhat similar case produced a completely different decision in a northern state, because actual contract provisions relating to warranties or performance promises were spelled out by the dealer-contractor. In this agreement the dealer-c ontractor guaranteed that the equipment would reduce the temperature 10 deg "below normal room temperature at the time."

In action brought by the dealercontractor for recovery of the purchase price, the buyer maintained that because the warranty for the reduction of temperature had not been met, there had been no acceptance of the equipment and consequently no liability for payment. The dealercontractor, on the other hand, insisted that the only course available to the purchaser was to offset whatever damages he had suffered against the unpaid price.

Support for the customer's contention that he owed no money until the terms of the agreement had been performed, was found by the court in a similar decision in another state.

In that state the law provided: "The buyer may treat the fulfillment by the seller of his obligation to furnish goods as described and as warranted, expressly or by implication in the contract to sell, as a condition of the obligation of the buyer to perform his promise to accept and pay for the goods."

Right of Refusal Upheld

Applying this statute to the case at hand, the court had said, "When the buyer refused to accept the equipment as a fulfillment by the dealer-contractor of his obligation under the contract of sale, he acted wholly within his rights under the contract—provided the equipment in fact failed to meet the conditions of warranty implied by law under the circumstances..."

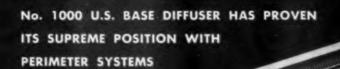
On this basis, the court ruled in favor of the buyer who based his defense on the fact that the contract contained a warranty which had not been fulfilled. (This was in contrast to the first case, in which the court held that no warranty existed.)

[[]Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states.]



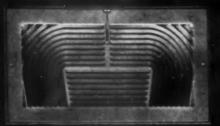
Put Your PERIMETER Residential and Air Conditioning

SALES WAY OUT IN FRONT!

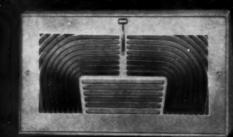


Patented U.S. No Des. 178052 The Set-Lock is an original — Not a Capy. The Slide-Plate Battom is an Original that Saves Cutting and Installation Time. No. 1000 DIFFUSERS are made in Two and Four Foot Sizes with which any desired lengths may be assembled.

ANOTHER U.S. "ORIGINAL DESIGN" THAT SETS A NEW PACE FOR PER-IMETER DIFFUSERS, THE NO. 105 U.S. SIDEWALL and NO. 106 U.S. BASE DIFFUSERS

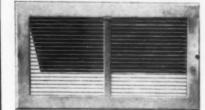


No. 105 U.S. DIFFUSER SIDEWALL REGISTER (U.S. Patent Number 176, 926)



No. 106 U.S. DIFFUSER BASE REGISTER

No. 153 (Single Valve)



THE GREATEST SINGLE VALVE and MULTI-VALVE STYLES of AIR CONDITIONING REGISTERS ON EARTH—LOWEST COSTS

No. 256 (Multi-Valve)



GET OUR COMPLETE PRICE STRUCTURE

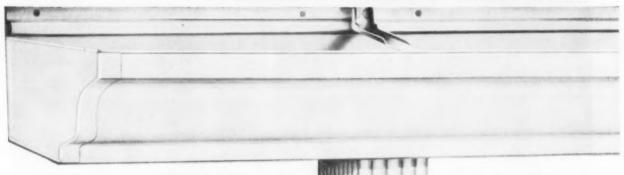


UNITED STATES REGISTER COMPANY

BATTLE CREEK, MICHIGAN

MINNEAPOLIS . KANSAS CITY . ALBANY

FROM ALCOA! AN ENTIRELY NEW GUTTER AND

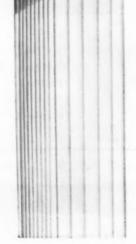


Joints Riveted and Cold-Sealed on the Job, Easily, Quickly. Alcoa's patented joint sealant and exclusive riveting method provide tough joints that withstand heavy loads of ice or snow without pulling apart or loosening. Hot soldering on the job or in the shop is ended.



Modern, Simplified Fittings for Faster Installation. The exclusive Alcoa design eliminates one-third of the fittings you normally use! Miter section is new, simplified, easier to use. Now you can head for the job without the old-style corner and downspout sections, slip joint connectors, strap hangers and gutter spikes. No hot soldering either. Alcoa fittings fit snugly, assure a better looking job. Fewer fittings and joints mean less work for you.





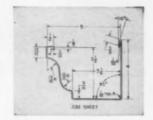
Two Special Hanging Systems to Do the Job Right. Fascia apron and bar hanger for replacement installations, roof apron and strap hanger for new construction. Both hangers allow the gutter to expand and contract with changing seasonal temperatures. Because Alcoa gutters are "free-floating," joints can't pull apart. Back of gutter is ½" higher than front to protect the roof and shingles against backed-up water.



Easier to install, extra strong, better looking

Here's the extra-heavy Alcoa® Aluminum gutter and downspout system* that goes up faster and easier—with on-the-job riveted and cold-sealed joints. It's a rigid, watertight system that outmodes the ready-made systems you've been working with. Check the features highlighted here-strongest gutter on the market, entirely new hanging system, exclusive riveting and sealing method, simplified fittings, and clean, attractive lines that homeowners want.

PRECISION-MADE GUTTERS, FULL .032" THICK. This gutter is made to stand up-you can lean a ladder against it when you have to. It's manufactured to 1/4" tolerance. Joints fit and seal better with less work. Alcoa gutters are available in 16-ft lengths that help speed up the job, eliminate joints. Size is standard 5". Available in either OG or half round with plain or embossed finish.



*Patent applied for



Made of Durable, Extra-Heavy Alclad Aluminum. Alcoa Aluminum gutters are a full 20% thicker than other ready-made aluminum gutters sold today! They're superior because they're alclad—made with an especially durable, corrosion-defying surface. The Alcoa Aluminum gutter and downspout system is made to last!

NEW TESTED AND PROVED JOINING METHOD

Alcoa Gutter Seal. The result of thorough Alcoa research and testing. Joints are easily bonded by applying scalant to over-lapped surfaces, fitting and riveting. Joints stay watertight.

"Pop" Riveter. Simple to load, simple to use. Operates like a plier. Loaded riveter inserts into hole. Then pressure is applied with one hand and joining surfaces are riveted tight.







"ALCOA THEATRE"

Exciting Adventure Alternate Monday Evenings

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Ask your distributor or local metals supply house for new Alcoa Aluminum Gutters and Downspouts. Mail coupon today for detailed information.

Please send me complete information, including installation dat on new Alcoa Aluminum Gutters and Downspouts. Aluminum Company of America 1957-D Alcoa Building, Pittsburgh 19, Pa.	ta,
Name	_

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WHAT THE ASSOCIATIONS ARE DOING



AFTER-SESSION questions were answered for Alvin Treutel (center) by speakers Frank J. Nunlist, Jr. (left) and Lee Miles



NATIONAL GROUP INSUR-ANCE was discussed by (1 to r) Joseph D. Wilder, Angelo Hoffmann and Henry J. Ortwig



VISITOR FROM MINNESOTA, Richard J. Grant, is welcomed by new president, Carl Behrnd

Wisconsin Delegates Told

Dealer-Contractor Is Comfort Manufacturer

Industry growth and welfare is in the hands of the dealer-contractor because he is the person who purchases the components of a heating and air conditioning system, fabricates the essential air distribution system and assembles all of the various components into a comfort system. Because of his position in the sale of the industry's products, the dealer-contractor is the key man in any success enjoyed by the industry. He is also the person whom the public holds responsible for its comfort. These facts were borne out at the 43rd annual convention of the Sheet Metal Contractors' Association of Wisconsin held in Milwaukee March 10-12.

Officers and directors elected to serve for the fiscal year of 1958 are: president, Carl H. Behrnd, Madison; first vice president, A. T. Ihde, Milwaukee; second vice president, Martin Petersen, Jr., Kenosha; secretary, Ben Brozek, Milwaukee; treasurer, Frank Kramer, Milwaukee; executive secretary, Robert S. Schmieder, Milwaukee; directors (three years), Elmer M. Grant, Clintonville and Elmer Hathorn, Janesville. Directors whose terms will expire in 1959 are Ted Kuck, Sheboygan and A. Demshar, Milwaukee. Directors whose terms end in 1960 are Ralph Hovland, Eau Claire, and Jim Harbridge, Fond du Lac.

In support of the theory that the dealer-contractor is a manufacturer of comfort systems, Frank J. Nunlist, Jr., Mueller Climatrol, told the delegates that dealer-contractors would profit more by putting emphasis on management and supervision instead of spending their time in performing actual sales and installation tasks.

Supporting this point of view was Lee Miles, air conditioning engineer, Mueller Climatrol, who recommended that dealer-contractors demonstrate to the public that they are comfort engineers. This means that a dealer-contractor must not only display his ability to install the type of system best suited to a particular application, but must also participate in civic affairs and dress according to his position as engineers from other fields do.

SMACNA Reports on Group Insurance

Group insurance for sheet metal contractors and members of the Sheet Metal and Air Conditioning Contractors' National Association was described by Joe Wilder, executive secretary of SMACNA. Mr. Wilder described the efforts of the association's insurance committee, which for two years has been looking into an insurance program that would cover owners, officers and key personnel of sheet metal and warm air heating-air conditioning businesses. Mr. Wilder pointed out that the committee had set four prerequisites for a group insurance policy that would cover members of the national association. These four prerequisites are: 1) all members of SMA-CNA would be eligible without a medical examination; 2) no limit would be set as to age of applicants; 3) the policy must offer a face value of 11/2 times the largest annual earnings, with the top value being set at \$40,000; 4) the policy must be one that is not intended to cover



Stainless Steel polishing information:



*Play it cool and don't press

You can polish Stainless Steel to a mirror finish but you can't rush the job. Too coarse a grit, too much speed, too much pressure might scorch or discolor Stainless because steels of this family are not rapid heat conductors.

Use light pressure on the polishing agent, and remember that you can't get a desired finish any faster just because you press harder. Take your time. This

is by way of saying that Stainless Steel isn't difficult to fabricate, it's just different.

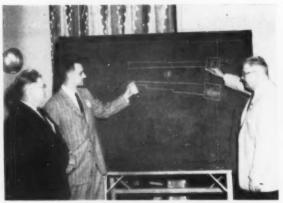
All your work on Stainless will be expert if you follow the "Stainless Steel Fabrication Book." If you don't have a copy, we'll be glad to send you one. Write on your company letterhead to United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

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Tennessee Coal & Iron - Fairfield, Alabama
United States Steel Supply - Warehouse Distributors
United States Steel Export Company



United States Steel



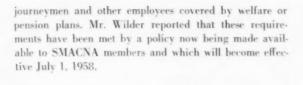
EXTENDED PLENUM SYSTEM vs the graduated duct system was reviewed at the general sheet metal workshop by (1 to r) Al Olsen, Elmer Grant and Robert S. Schmieder



INDUSTRIAL VENTILATION WORKSHOP was conducted by Robert Holming (left) and A. T. Ihde



FABRICATING TECHNIQUES were covered in a workshop session on this subject. At the blackboard are Ed Specter (left) and moderator Roland Biersach

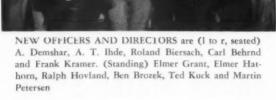


Tell How to Improve Operating Efficiency

Three seminars were conducted by the convention dealing with warm air heating and residential air conditioning, industrial ventilation and production fabricating. In each of these three seminars, specific subjects were covered that brought out pertinent information to aid dealer-contractors in operating their businesses in an efficient and profitable manner. In the case of the heating and air conditioning seminar, one of the subjects discussed was the advantage of extended plenum systems vs graduated duct systems, the conclusion of the seminar being that it is advisable to use graduated duct systems where ranch style houses require supply plenums longer than 18 ft.

The industrial ventilation seminar covered some of the problems involved in dust collecting and material handling. One of the points brought out in this seminar was the advantage in sizing ducts to maintain essential air volumes and velocities. The advantages of using cyclone collectors for heavy materials and filtering chambers for fine materials were also pointed out.

In the production fabricating seminar, discussions centered around the importance of training men not only to produce quality work but to maintain a careful watch on the amount of stock used, thus cutting down the waste ratio. Storage and shipping techniques were discussed, with case histories being used to demonstrate ways of preventing deterioration of the fabricated product prior to the time it's delivered to the customer.



(More association news on page 94)

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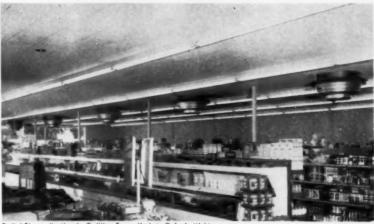
UTAH, SALT LAKE CITY Arch P. Robertson 1347 South 17th East

UTAH, SALT LAKE CITY Refrigeration Dist. Corp. 234 West 1300 South (15)

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Norman Three-Sixty®

Gas-Fired UNIT HEATERS

answers more jobs better

Operating completely independent of room air. Norman Three-Sixty Unit Heaters can be installed in many applications where other unit heaters may

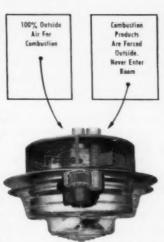
They are especially suitable for super markets, bakeries, restaurants, meat shops, candy stores and other locations where combustion products entering the room threaten contamination.

Norman Three-Sixty Unit Heaters are particularly adaptable to drug stores, variety stores, dry cleaners or wherever exhaust fans create a negative pressure that may cause pilot outage.

Two Types, Two Sizes

Radial-Flo units gently distribute a complete circle of warm air downward and outward. Down-Blo units provide direct, spot heating from high ceilings-excellent for blanketing vestibules, lobbies and doorways of garages, repair shops, warehouses and other entries exposed frequently to the outside weather.

Both Radial-Flo and Down-Blow models available in 85,000 or 115,000 BTU/hr. inputs.



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SHEET METAL AND ROOFING panelists reviewing presentation schedule are (I to r) Dion E. Mannen, Douglass Winning, H. J. Shafer, R. C. Moorhead and Fred C. Christen (standing in rear)



RECEPTION and registration committee members who made it possible for out of town guests to see Toledo's points of interest are (1 to r) Don E. Dieterle, Robert Fry and Lee Gillespie



HOW TO EARN a higher profit through better business practices was demonstrated by panelists (1 to r) William E. Favret, Newton T. Hess and Adam Pataky

Ohio Convention

Points Way to Better Profits

How to operate a sheet metal contracting or heating and air conditioning business at a better profit margin was the theme of the 44th annual convention of the Ohio Sheet Metal Contractors Association, held at Toledo March 3-5.

Robert L. Butler. Dayton, was elected president for 1958. Three vice presidents, who serve without seniority, are Douglass Winning, Cleveland; Adam Pataky, Columbus; and Lee Faunce, Toledo. Don E. Dieterle, Toledo, was elected secretary and treasurer. Four new directors elected to serve for three years are: Harry Fravel, Jr., Canton; Conrad Wagner, Cincinnati; Carl Cowan, Dayton; and Fred Christen, Toledo. A. E. Grumney, Cleveland, was elected to serve out the two year unexpired term of Ray Quiggen of Cleveland. Other members of the board of directors are Harold Lyle, Dayton; Robert Spragg, Columbus; Harry Liberman, Akron; and Meyer J. Jacobson, Cincinnati. William C. Lumm, Toledo, is an ex officio member of the board of directors.

Give Tips on How to Buy

Setting the pace for providing information in keeping with the theme of the convention was the panel session entitled "Buying for Prosperity." Newton T. Hess, Vorys Bros., Inc., Columbus; William E. Favret, Favret Co., Columbus; and Adam Pataky, Adams, Lusch and Schill

Furnace Co., Columbus, presented a skit they had previously given in Chicago at the recent convention of the National Warm Air Heating and Air Conditioning Association.

The panel members listed nine important points essential to proper purchasing techniques:

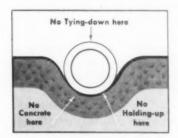
- 1) Decide on what to sell.
- 2) Establish a buying plan for one year in advance.
- Remember that quality is the only real economy in making a purchase.
- Know the responsibility of the wholesaler and manufacturer who provides your equipment.
- Obtain the help of wholesalers and manufacturers in promoting products offered to the public.
- Price of the products purchased should be based on established market policies.
- Stability of prices often indicates the reliability of a source of supply.
- 8) Friendship of the representatives of wholesalers and manufacturers is important. This friendship should be based on proven evidence of the representatives' interest in the dealer-contractor's problems.
- Think of the tangible benefits, both to the business and the customer, when placing an order.

Another panel which pointed its information toward facts needed by dealer-contractors to operate their businesses at a better profit level was entitled "Information



Transite Air Duct keeps installed costs low!

Strong! Corrosion-resistant! Transite lets you eliminate costly concrete encasement



Transite* offers you many advantages—many ways to save when you install modern slab-in-grade perimeter heating and air-conditioning systems.

Of all its money-saving advantages, many contractors say its strength and corrosion resistance are most important, because they make costly concrete encasement unnecessary. Both time and concrete are saved as your men position Transite directly on the prepared bottom. There's no need for special supports—and because Transite won't float—no need for anchoring.

All your men do is position duct and pour concrete.

Transite installs still faster because fittings can be made quickly, easily, right on the job—or ordered factorymade to your requirements.

To homeowners, Transite Air Duct offers permanent, trouble-free service. Made of asbestos-cement, it is fully corrosion-resistant inside and out. It won't flake or flap down to impede air flow . . . will never rot or give off odor.

Let us send you a free copy of Transite Air Duct booklet, TR-144A. Address Johns-Manville, Box 14, New York 16, N. Y. In Canada, 565 Lakeshore Road East, Port Credit, Ont.



Johns-Manville TRANSITE AIR DUCT



OFFICERS AND DIRECTORS of Ohio Sheet Metal Contractors Association are (1 to r, seated) Harry Liberman, Don E. Dieterle, Robert L. Butler, Lee Faunce and William C. Lumm. Standing (1 to r) are Fred C. Christen, Harry Fravel, Jr., Carl Cowan, Harold Lyle and A. E. Grumney

We Need." This panel was moderated by Harry Fravel, Jr., Canton dealer-contractor. Serving as panel members were Clyde M. Barnes, editor, American Artisan; Charles W. Davis, Fred Christen & Sons Co.; R. L. Floyd, Arthur Young Co.; and Lawrence I. Schiermyer, Ohio Citizens Trust Co.

Mr. Barnes described business conditions in the industry throughout the country, pointing out how dealers and contractors are adjusting their operations to take advantage of new sales promotion techniques, new products and new installation techniques.

Problems in developing apprentices and other labor problems were covered by Charles W. Davis, who said that dealers and contractors would profit by making it obvious to their employees that management is aware of employee problems throughout each month of the year.

Explaining that depreciation of equipment has quite a bearing on the profit picture, R. L. Floyd suggested that the recommendations of the company auditor be followed in this matter.

Good credit is a business asset that all too often goes unnoticed, according to L. I. Schiermyer, who discussed the advantages that can be gained if a dealer-contractor will periodically review his credit position and keep it in good standing.

New Metal for Corrosive Applications

A panel specifically covering subjects of interest to the industrial sheet metal contractor was moderated by Dion E. Mannen. He was assisted by panelists H. J. Shafer, Brush Beryllium Co.; R. C. Moorhead, Bellman, Gillett & Richards Co.; Douglass Winning, Cleveland sheet metal contractor; and Fred C. Christen, Toledo roofing contrac-

tor. This panel covered the subjects of stainless steel, ventilating, and roofing. In describing applications for a new metal now being made available on the market — beryllium-copper — H. J. Shafer pointed out that this material is very useful in corrosive applications, but is also expensive. (Beryllium costs, in its refined state, approximately \$100 a pound.) Beryllium mixed with copper can be rolled into sheets and used in corrosive applications at a cost ranging from five to six times as much as galvanized metal used for a similar system. However, due to the long life of beryllium-copper, this cost is soon offset, according to Mr. Shafer.

R. C. Moorhead covered new revisions in the state building code as they affect commercial ventilation for various areas.

The use of stainless steel for custom made cabinets and similar pieces of equipment was outlined by Douglass Winning, who described correct procedures to follow in welding, forming, blanking and punching this material.

The importance of a sheet metal shop to every roofing contractor was outlined by Fred C. Christen, who pointed out that all metal used in roofing work must not only be properly fabricated but must also be properly installed in order to make the roofer's guarantee practical.

Good Engineering Important in Profit Picture

The subject of heating and summer air conditioning was covered in a panel moderated by Lee Jones, Columbus dealer-contractor. Panelists were Larry J. Monahan. Surface Combustion Co.; Allen McKnight, Columbus dealer-contractor; John Moellering, Dayton dealer-contractor; and Wilbur Bull, secretary of the National Heating & Airconditioning Wholesalers. The relation of good engineering techniques to profits enjoyed by a dealer-contractor was pointed out by Larry J. Monahan. He recommended the use of all engineering aids available to avoid over- or undersizing of equipment, either of which results in expensive call-backs for system adjustment.

Sales promotional activities that contribute to a dealercontractor's profit margin were described by Allen Mc-Knight, who recommended that the dealer-contractor pay particular attention to the appearance of his place of business, making sure that it is clean and well lighted and contains an attractive showroom for the display of equipment handled. He also stressed the importance of well kept trucks and truck signs, and of neat uniforms for both installers and servicemen.

How a dealer-contractor can profit by utilizing the services provided by wholesalers and manufacturers was described by John Moellering, who suggested that the service and parts policies of jobbers and manufacturers be examined carefully. He pointed out that when manufacturers or jobbers are late in delivering new equipment and repair parts, or are slow in providing engineering

When You Face the Facts MONCRIEF Offers You Greater Advantages!

NEW LOW PRICES PREMIUM CONSTRUCTION







Completely Assembled and Wired

New, advanced design Winter Air Conditioners and Counterflow Units that are more compact, efficient and good looking. Available with increased Blower capacity for cooling. Gas Fired . . . 75,000, 100,000, 125,000 and 150,000 Btu Input . . . 16 Gauge Heat Exchangers. Oil Fired . . . 78,400 and 112,000 Btu et Bonnet . . . 16- and 14-Gauge Heat Exchangers, respectively.

FACT: Moncrief Heating and Air Conditioning Units are built better . . . ruggedly constructed, with heavy-gauge steel heat exchangers and casings . . . designed with the experience of more than 60 years devoted exclusively to warm air heating and air conditioning manufacturing . . . with a noteworthy record of service-free operation!

FACT: Moncrief is priced lower. Efficient manufacturing now makes possible even lower prices for the Moncrief Units which your customers want most. Whether you need one unit or a large quantity, you can rely on Moncrief's published trade prices to place you and keep you ahead of competition. And buying from your Moncrief Wholesaler makes it unnecessary to carry any stock!

FACT: It will pay you handsomely to call your Moncrief Wholesaler, now!

THE COMPLETE LINE FOR ANY INSTALLATION





Gas or Oil Fired Utility



Gas or Oil



Harizontel Furnaces 4 Gas Sizes 4 Oil Sizes













Water Cooled



HENRY FURNACE COMPANY





HEATING AND AIR CONDITIONING UNITS



assistance for unusual jobs, the dealer-contractor not only loses customers but suffers damage to his reputation as well.

Wilbur Bull described training facilities made available through wholesalers. He pointed out that educational programs underway on the national level are designed to aid the dealer-contractor at the local level, and that members of the National Heating & Airconditioning Wholesalers' association are responsible for the development of these educational programs and their use at the local level.

In recognition of the part that the trade press has played in the disseminating of information to members of the association, a plaque was awarded to American Artisan "to express appreciation for its constant regard for the welfare of the Ohio Sheet Metal Contractors Association."

NHAW Appoints Committee Chairmen

JOHN ROBERTSON, president of the National Heating & Airconditioning Wholesalers, Inc. has appointed R. W. Allen chairman of NHAW's air conditioning committee. R. J. Woodward was named coordinator of the two dealer-contractor education committees—management training and sales training. Mr. Woodward will also head the dealer-contractor management training commit-

tee, and Richard Young is chairman of dealer-contractor sales training. Other new committee chairmen are Gail Mason, personnel testing; J. Orville Garrett, resolutions; Arnold J. Alderman, standardization; A. M. Vorys, distribution policy; Walter Burnside, statistical; Ralph B. Bell, wholesaler management training; A. R. Rees, wholesaler sales training; and Roy C. Brainard, associate member. Harold W. Squire was appointed chairman of a committee formed to investigate the possibility of a third class of members.

Alabama Association Ups Membership

The Roofing, Sheet Metal, Heating & Air Conditioning Contractors' Association of Alabama reports that since the fourth quarter of 1957 dealer-contractor membership has increased from 63 to 92 and associate membership has grown from 16 to 35.

The association has prepared a membership decal, 9 in. in diameter, for use in display rooms, windows, offices, etc. The outer border is black with the association's name printed in large white letters. Inside the border, in red ink, is the outline of the state of Alabama and the words, "Member, Rasmhacala."

The group's fourth annual convention will be held on Friday and Saturday, June 20-21, at the Battle House hotel in Mobile.

Minnesota Contractors Urged to

Train More Sheet Metal Apprentices

THE PROBLEM of attracting young men to the sheet metal industry, steps to be taken in formulating a state sheet metal code, and community service as a public relations builder were the principal topics of discussion at the annual convention of the Sheet Metal and Roofing Contractors' Association of Minnesota, held in Duluth Feb. 20-22.

Officers elected are Ray Hershey, Albert Lea, president; Robert McPhillips, St. Paul, vice president; Richard Seelye, Minneapolis, secretary; Truman Johnson, Austin, Treasurer; and C. B. Lee, Hibbing, sergeant-atarms. New directors are Norton Jamar, Duluth; James Quade, Minneapolis; and C. L. Linfoot, East Grand Forks.

Bernard Schilling, Bureau of Apprenticeship and Training, told the contractors that the sheet metal industry is falling short in the number of trained sheet metal men and supervisors it is producing. He suggested that officers of the state association meet with members of local associations to discuss the problem and consider ways of overcoming it. The national apprenticeship bureau will be glad to cooperate in such an undertaking. Mr. Schilling said.

A committee was appointed to work on the proposed state sheet metal code. As the first step in gathering necessary information, contractors from Minneapolis, St. Paul, Duluth and Rochester will call on architects and engineers to obtain their opinions regarding equipment that should be included.

The Honorable Eugene Lambert, mayor of Duluth, speaking on the subject of "Government Opportunity for Contractors' Growth," pointed out that taking part in community affairs is one of the best methods available for publicizing a business and the services it offers. By participating in civic projects, for example serving on committees that are set up to improve a community, he said, a contractor opens the way for the public to become acquainted with him as a good citizen and a competent businessman in his own field.

(More association news on page 101)

the quality tells...the quality sells

new_ANITROL

OIL-FIRED WINTER AIR CONDITIONERS



QUIET...CLEAN...CAREFREE

Convertible to gas — adaptable for Janitrol ADD-ON summer cooling a new concept of QUIET performance

to help you sell and grow with

OIL-FIRED WINTER CONDITIONERS

Time was when you had to put up with noise and vibration in your oil-fired furnace installations. And then came this great Janitrol oil-fired winter conditioner line-and with it a whole new concept of quietness and automatic efficiency in performance!

Now noise is needless! Now you can provide gentle, quiet warmth (new fuel economy, too!). Do away with profit-draining service call-backs and complaints. These new Janitrols put the damper on noise so effectively you'll scarcely believe your ears when the powerful Jet-Omizer burner and floating blower and motor go into action!

Their clean-lined beauty and compact design is easy on the eyes-saves space. And all models are designed for easy conversion to gas and addition of summer cooling.

Ask your Janitrol representative for all the facts on this great Janitrol automatic oil-fired winter conditioner line. Or, mail the coupon to us today. Get set to sell and grow with Janitrol!



You can stake your reputation on ANITROL QUAlity

Janitrol Heating Heart . . . exclusive design, fabricated from full 14-gauge steel, all-welded construction. Far quieter, more durable and more easily accessible than ever before.

Jet-Omizer High Pressure Burner . Super-powerful to thoroughly atomize fuel and mix it uniformly with air for clean, complete combustion

Compact, Insulated Cabinets . . . Save space. Insulated to minimize heat transmission and provide utmost quietness in operation. Lustrous baked enamel finish.

Adjustable Leveling Bolts . . . "Adjustabolts" at corners of cabinet base simplify leveling the conditioner. Solid base plate on Low Boy adds rigidity, keeps out dirt and dust.



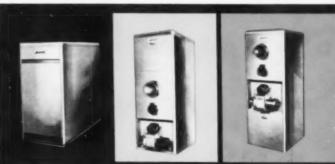
Factory Assembled . . . all models require only addition of burner, refractories and controls at the job. You save installation time and labor.

Fully Automatic Controls . . . The last word in convenience . . . Assure more uniform heating with maximum safety and economy for all conditions.

Pre-Fabricated Wiring Harness . Makes your installation job easier and faster, keeps you in the profit zone. Models For All Needs . . . Btu. output at Bonnet 85,000, 102,000 and 135,000.

Adaptable for fullperformance cooling with JANITROL ADD-ON COMPONENTS

Janitrol ADD-ON Cooling is waterless, requires only air and electricity for operation. Uses same ducts, blower and filters used for heating. May be installed with furnace, or any time later, to provide refreshing summer comfort-and more profits for you!



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Please show me how I can sell and grow with the new JANITROL OIL-FIRED CONDITIONER Line and other quality-built Janitrol winter, summer and year 'round conditioners.

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Janitrol LOW-BOY Model OFLS-65 . . . a masterpiece of modern design ideal for installation in hasement recreation Janitrol DOWN-FLOW Model OFDS-65 . . . for perimeter heating systems. Compact, quiet. space-saving. Install in closet, alcove, utility room.

Janitrol HI-BOY Model OFVS-65. especially designed for installation where floor space is limited - basement. utility room or closet.



OUT-OF-STATE GUEST AND SPEAKER H. W. Meggs (left) is welcomed by convention committee members Glen Rynbrand, Earle Oole and Clarence C. Blakeslee



PRESIDENT of the traveling salesmen's auxiliary Blaine Lytle receives the gavel from outgoing president George Wiener



REVIEWING PLANS for the business sessions are (1 to r) Charles S. Flynn and Carl McKenna. Standing, N. J. Biddle and Dee Cramer

Michigan Dealer-Contractors Told

How to Sell Profitable Jobs

The cost of equipment used in the construction of residences has, on the average, more than doubled since 1945; however, the cost of heating and air conditioning systems has remained at about the same level as that prevailing in 1940. In selling buyers of central residential year 'round air conditioning systems, dealer-contractors attending the Michigan Heating and Sheet Metal Association's 47th annual convention in Grand Rapids, Feb. 20-21, were told that they should take the necessary time to outline the benefits of a quality installation before suggesting a price for their work.

This approach is designed to prepare the prospect for the price to be asked. The price of course should include a sufficient markup on the equipment to provide for the type of work essential to a good installation. The price should also provide for followup service required by the guarantees given.

Officers elected are: Charles S. Flynn, Muskegon, president (a second term); William Calverley, Royal Oak, vice president; Earle Oole, Grand Rapids, treasurer; N. J. Biddle, Detroit, secretary.

Directors elected for a two year term are Fred Breitmeyer, Mt. Clemens; Charles Shartow, Midland; Lewis Andrus, Kalamazoo; and Henry Labadie, Royal Oak.

The Traveling Salesman's Auxiliary elected Blaine Lytle, Air Con, Inc., Detroit, president; R. H. Pettinga, Hopson-Bennett Co., Grand Rapids, vice president; Jack Carman, Detroit, secretary-treasurer; and Earl Newville, Earl Newville and Son, Detroit, sergeant-at-arms.

Use Standards to Sell More Profitable Jobs

Pointing the way toward the selling of more profitable jobs was a panel moderated by Earle Oole, association vice president. Panelists were Clyde M. Barnes, editor, American Artisan; H. W. Meggs, heating dealer-contractor from New Castle, Ind.; a Grand Rapids builder, Donald Cederlund; and R. H. Pettinga, Hopson-Bennett Co., Grand Rapids wholesaler. This panel endeavored to point out the value of quality systems and explain how they can be sold both in the new house and replacement markets. Clyde M. Barnes discussed the use of American Artisan's Standards for Rating Heating Systems, explaining how this sales tool can be used in the new house and replacement market to achieve a better price for installations recommended. H. W. Meggs covered methods of soliciting business for the replacement market. He recommended the use of check-lists, such as those published in the March American Artisan, as an important source of leads. The builder described the highlights of a sales presentation designed to influence builders to pay higher prices for quality heating systems installed in new residences. R. H. Pettinga pointed out the wholesaler's re-

(Continued on page 104)

This is a Landmark

New! LANDMARK by LENNOX

... MODULAR "BLOCK" SYSTEM FOR 100% TAILORED INSTALLATIONS



"Spectacular" is the word for this new Lennox development. It's spectacular in quietness... in installation versatility... in operating efficiency! Blower, heating section and cooling coil are separate packages—yet fit together as a compact unit to deliver the exactly right comfort. No guesswork—no "make-do."

It's as simple as ABC. Just choose the blower with the proper Cfm capacities—and add whatever heating and/or cooling units that best suit the need (as well as your customer's fuel preference and budget).

DOZENS OF COMBINATIONS... HEATING AND/OR COOLING



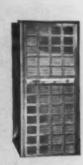
UP-FLO HEATING



MODEL



UP-FLO



UP-FLO COOLING

LENNOX Industries Inc.

A "LANDMARK" IN AIR CONDITIONING AND **HEATING...IN SALES OPPORTUNITY, TOO!**

- · Heating units in gas, oil, electricity and HEAT PUMPS
- Complete flexibility
- Reduces installation costs
- Quietest units on the market
- Commercial and residential
- Simplifies your inventory
- · Up-flo or down-flo



SECTIONS OR "BLOCKS" STACK TOGETHER EASY AS

Each section is housed in beautiful 20 gauge steel cabinet. Centering pins assure perfect alignment-give appearance of a single unit. Capacities-heating: 68,000 to 378,000 Btu input. Cooling; 2 to 10 tons.



AIR



PUMP WITH ELECTRIC

DEALERS! Don't be "left at the post" in the BIG race for business. Get the facts about LENNOX dealer opportunities

MAIL COUPON TODAY!

City...

Marshalltown, Iowa . Columbus, Ohio . Syracuse, N. Y. Fort Worth, Texas • Salt Lake City, Utah • Los Angeles, Calif. Decatur, Georgia • Des Moines, Iowa

Lennox Industries (Canada) Ltd.—Toronto, Montreal, Calgary and Vancouver

Lennox Industries Inc. (Address negrest branch, See locations at left)

Without obligation, send me information about the dealer opportunities with the new Landmark.

Company.

Address.

State.

My Name.

sponsibility to assist new dealers in learning how to properly figure overhead costs so that these expenses would be included in bids submitted for quality systems.

How to Make a Profit on Service Work

Another panel, moderated by Glen Rynbrand, chairman of the convention, covered methods for making a profit from both service and installation work. Covering points on service was Dee Cramer, heating and air conditioning dealer-contractor from Flint, Mich., who recommended that a complete service record be kept on every installation and service call. Such a system, he said, would provide vital information needed in supplying replacement parts, thus cutting down the cost involved and making it possible to reduce the size of the bill to the customer. Speaking on quality installations was Ernest Fox, Hager-Fox Co., Lansing, Mich. dealer-contractor. Mr. Fox described the procedures for handling an installation to cut down on lost time at the job site, which is usually responsible for low profit.



FOUR CHARTER MEMBERS of the traveling salesmen's auxiliary reminiscing at the group's 41st meeting are (1 to r) Lee Gillespie, Ros Stong, Cliff Herrendeen and Charles J. Pierson

The size of the market, present and future, was discussed by John H. Reock, American Artisan, who revealed the findings of a recent survey conducted in 14 key markets. The survey indicated that over 80 percent of central residential summer air conditioning systems are installed by the warm air heating dealer-contractor.

How to Reach the Market

Methods of reaching this market were described by Lewis Andrus, Kalamazoo heating dealer-contractor, who described the WHAM program as used in Milwaukee. Mr. Andrus demonstrated 13 full page ads published by the Milwaukee association, pointing out that this program was undertaken to develop leads among people willing to pay for a well-designed and well-installed heating and cooling system.

A plan now in formation by the National Warm Air Heating and Air Conditioning Association, known as the Silver Shield program, was described by Randall Nelson, director of public relations for NWAHACA. The Silver Shield program is designed to cultivate consumer desire for better heating systems by telling the public about the requirements for a quality heating system and guaranteeing it through a standard type of contract.

Another panel discussion, directed toward the central residential summer air conditioning market, was moderated by Alfred W. Keats, King Cole Heating, Detroit. This panel consisted of Richard K. Chapman, Carrier Corp.; Carl E. Beltz, Star Steel Supply & Burton Co.; and Louis G. Farese. These men covered the value of a complete survey and a proper estimate; suggested ways of advertising summer air conditioning at times other than during the peak season; and recommended methods of overcoming frequently encountered complaints resulting from improper installation and service.

Dealer-Contractors to Control IHACI

PLANS FOR THE REVISION of the constitution and the reorganization of the Institute of Heating & Air Conditioning Industries were announced following a recent board of directors meeting. Kenneth Robertson, president of the association, has appointed a constitution committee made up of six dealer-contractors, two distributors and two manufacturers, to rewrite the constitution. "It is our plan to provide a majority role by dealer-contractors, both as officers and board members, in the leadership of the institute by the end of the current year," Mr. Robertson said. As an initial step in the new program, the directors have approved a revision in the dues structure for dealercontractor members to encourage a larger number of them to join the organization.

Institute sponsored classes in heating and summer air conditioning are now being conducted in Pasadena, Los Angeles, Pomona, Van Nuys, and Costa Mesa. Robert Berwick, chairman of the institute's education committee, states that plans are now underway for additional educational courses designed to aid the dealer-contractor in his daily business. These will cover technical, sales and management problems.

Aluminum Association Elects Den Uyl

S. D. DEN UYL, president of Bohn Aluminum & Brass Corp., was re-elected president of the Aluminum Association at the association's recent annual meeting. Everett G. Fahlman, was re-elected chairman of the board of directors.

(Coming Events on page 108)



QUALITY AT LOW COST

Rugged Construction AUER'S NEW VALUE-LINE DIFFUSER is designed for regular and project jobs where price is an important factor and economy a necessity. Heavy gauge face is produced in one piece with deflection vanes engineered to provide a "true-perimeter," fan-shaped pattern. New, rugged box houses louvers that are shaped to provide greatest strength. The built-in

opposed blade damper is easily controlled by an inconspicuous control that is foot or hand-operated. It can be set to balance the system at the outlet with a single volume control adjustment screw.

For complete details and prices see your Auer Register distributor or write for Bulletin PRF-58.

For further information on residential and commercial heating and air-conditioning registers, write for Auer's complete Register and Grille catalog.

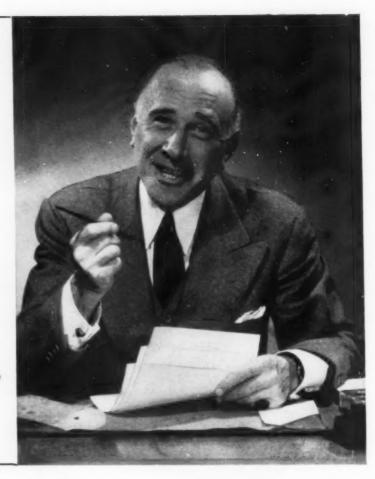


THE AUER REGISTER COMPANY

"REGISTERS AND GRILLES FOR EVERY HEATING AND COOLING NEED"

6602 CLEMENT AVENUE • CLEVELAND 5, OHIO

"I'm the best informed man in the business ...thanks to Dodge Reports"



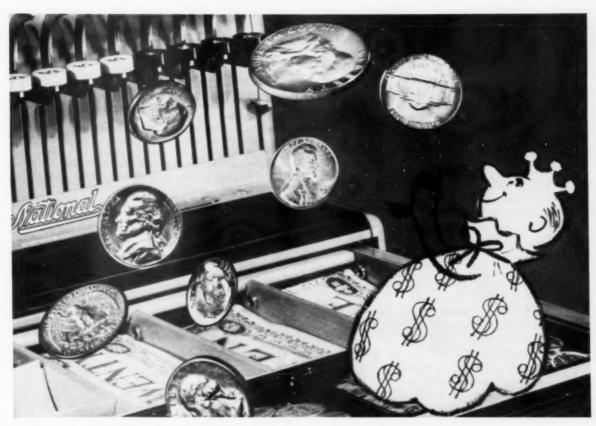
"I've been in business long enough to think I know everybody around, but I've learned never to be surprised when my Dodge Reports show up good jobs I didn't know about."

Even the best informed old-timer can't match Dodge Reports for knowledge of all that's going on in the construction industry. That's because no successful contractor can spend all his time getting construction news. But Dodge reporters do just that—it's their only job. And every day the news they gather is mailed to contractors who use Dodge Reports. If you want to know what's going to be

built, where it's going to be built, who the owner is, who's designing it and even when the bids are wanted, you can get this information for any area in which you operate within the 37 Eastern States.

This is not a year to gamble on getting your share of business and making a profit. Use Dodge Reports for the assurance of having the business opportunities you need. Send the coupon now for your copy of "Dodge Reports—How to use them effectively," including the famous "Dodge Specification Form" to help you figure out the kind, size, location, etc., of jobs you should go after.

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F. W. Dodge Corporation, Construction News Division, Dept. 1648 119 West 40th Street, New York 18, N. Y.	
I want to know how to get more new construction business. Please let me see some typical Dodge Reports for my area, I am interested in the markets checked below:	"Manharita
House Construction General Building Engineering Projects (Heavy Construction)	w 0000
Name.	Dodge Reports For Timed Selling to the Construction Industry
Company	Tot timed selling to the Construction industry
Address	i .
City Zono State	1





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trouble-free

Trouble-free operation—that's the first goal of Chrysler's Airtemp engineers! It's mighty important to Airtemp dealers, too. Soundly engineered heating or cooling cuts complaints and service calls! Result? Airtemp dealers keep their initial sale profits!

There are other reasons, too, why Airtemp dealers make more money—

- The Airtemp line is complete—really complete—with 297 heating and cooling models. Airtemp dealers can satisfy any cooling or heating need!
- They sell the Chrysler name and Chrysler's famous engineering.
- · Pre-tested merchandising helps and incentive programs.
- Special training for dealers and their personnel at Chrysler Corporation Service Centers.
- · Factory advertising in your local markets.

Why don't you bank on Airtemp—the profit franchise? Just mail the coupon below.

CHRYSLER



AIRTEMP DIVISION, CHRYSLER CORP. DEPT. AA 4-58, DAYTON 1, OHIO

Please send me full information on an Airtemp franchise.

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Coming Events

April

Apr. 14-15 - National Heating and Airconditioning Wholesalers, spring meeting, Atlanta Biltmore Hotel, Atlanta. W. R. Bull, executive director, 1200 W. Fifth Ave., Columbus, Ohio.

Apr. 14-17 - Long Island A & T Institute college course, Farmingdale, L.I., N.Y. Wilson P. Merritt, chairman, Long Island A & T Institute, Farmingdale.

Apr. 21-24 - Northeastern University college short course, Boston, Mass. Nelson G. Copp, chairman, Northeastern University, Boston.

Apr. 29-30 - National Warm Air Heating & Air Conditioning Association, Research Advisory Council meeting. Illini Union. University of Illinois, Urbana, Ill. George Boeddener, Managing Director, 640 Engineers Bldg., Cleveland 14.

May

May 1-3 - Roofing and Sheet Metal Contractors Association of Florida, annual convention, Silver Springs resort, Silver Springs, Fla. Mrs. Anne White, executive secretary, P. O. Box 6271, Jacksonville 5, Fla.

May 4-7 — Air Conditioning and Refrigeration Institute, annual meeting. The Homestead, Hot Springs, Va. George S. Jones, Jr., managing director, 1346 Connecticut Ave., N.W., Washington 6, D.C.

May 7 - Oil Heat Institute of New England. annual one-day convention, Hotel Sheraton-Plaza, Boston, Ivan C. Sutherland, director, 839 Beacon St., Boston 15.

May 7-11 - Western Air Conditioning, Heating, Ventilating and Refrigeration Exhibit and Conference, Shrine Exposition Hall. Los Angeles. Fred J. Tabery, exhibit manager, 3443 S. Hill St., Los Angeles 7.

May 8-9 - National Association of Sheet Metal Distributors, spring meeting. Sheraton-Blackstone Hotel, Chicago. Thomas A. Fernley, Jr., executive secretary, 1900 Arch St., Philadelphia.

May 8-9 - National Warm Air Heating & Air Conditioning Association, Technical Data Committee meeting, Cleveland Hotel, Cleveland, George Boeddener, Managing Director, 640 Engineers Bldg., Cleveland 14. Other committee meetings scheduled are:

Heat LossMay 15

System Performance,

Systems ClassificationMay 19 Manual 9 May 20 Convection Systems May 21

Panel & Panel-Convection May 22 Summer CoolingMay 23

Application Engineering.

Executive & Finance,

Membership, Short Course,

Publicity & Merchandising June 4 Board of TrusteesJune 5

May 8-10 - Sheet Metal and Air Conditioning Contractors' National Association, Inc., annual convention. Eden Roc Hotel, Miami Beach. Joseph D. Wilder, executive secretary, 170 Division St., Elgin, Ill.

June

June 9-13 - Oil-Heat Institute, annual convention and exposition. Park Sheraton and Barbizon Plaza Hotels and the Coliseum, New York City. R. H. L. Becker, managing director, Oil-Heat Institute, 500 Fifth Ave., New York 36.

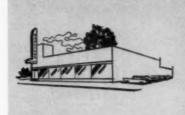
June 20-21 — Roofing, Sheet Metal, Heating & Air Conditioning Contractors' Association of Alabama, annual convention. Battle House Hotel, Mobile, Ala. B. M. Johnson, 405 Frank Nelson Bldg., Birmingham.

June 23-25 — American Society of Heating and Air-Conditioning Engineers, semi-annual meeting. Nicollet Hotel, Minneapolis, Minn. A. V. Hutchinson, Executive Secretary, 62 Worth St., New York 13.



1938 Not what you'd call a "boom" year by any stretch of the imagination. But things were looking up, though, for a new type of furnace. A horizontal oil-

fired furnace that could be installed overhead—up in the air and out of the way. One designed especially to save valuable floor space and reduce construction, modernization and maintenance costs for commercial and industrial buildings. And so, in 1938, the first four "Shafconaires" were built and installed for a major oil company—who has specified them ever since!







SHAFFONNIPE THE ORIGINAL SUSPENDED FURNACE PER



1958 "Boom" year or not, things are still looking up for SHAFCONAIRE. And they're looking up, too, for all who distribute, sell and install this first and foremost line of overhead heating equip-

ment. Why? Because only Shapconaire is backed by 20 years of successful, specialized experience in making and marketing quality suspended furnaces. Because the practical versatility of Shapconaire equipment has been proved time and time again to major buying factors in the commercial and industrial markets. And, finally, because Shapconaire is specified with confidence by more major oil companies, more national chain stores, more port authorities, more government agencies, more mining companies, and more architects, engineers and contractors than any other similar type of heating equipment.

WHOLESALERS AND HEATING CONTRACTORS: Models available for gas or oil and from 95,000 to 405,000 BTU output. Factory and regional warehouse stocks assure prompt, reliable delivery. Write for complete information today:

Over Head Heaters, Inc.

1612 BOOK BUILDING • DETROIT 26, MICHIGAN • WOodward 2-4647
Factory Location: Kalamazao, Michigan



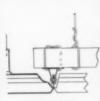
THE MARK OF QUALITY



Uni-Flo

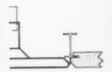
ENGINEERED AIR

UNI-FLO SQUARE CEILING DIFFUSERS "MAKE AIR BEHAVE," UNOBTRUSIVELY



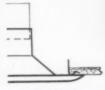
Model SQR

Designed for recessed mounting with acoustic ceiling tile and ceiling suspension systems. Type A flange can be snapped into standard T-Bar construction.



Model SQR

With Type B flange, this unit can be installed with most other types of ceiling suspension systems.



Model SQS

Provides a one-inch flange to cover opening irregularities — can be used with any type of ceiling.

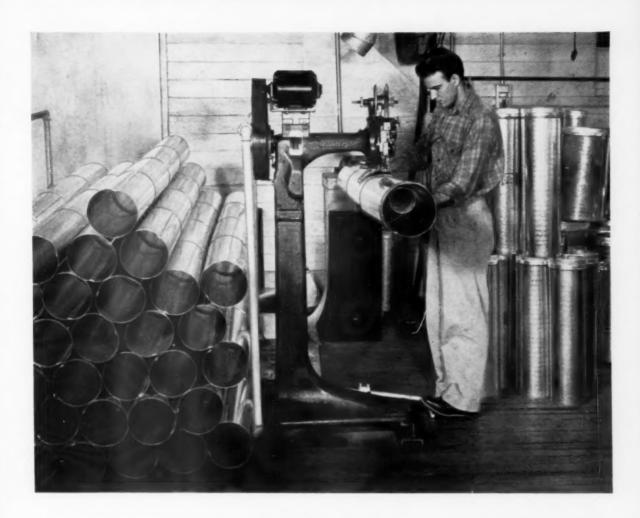


Designed for optimum performance while remaining unobtrusive, Uni-Flo Square and Rectangular Ceiling Diffusers provide rapid diffusion at low sound level. Draft-free delivery guaranteed when used in accordance with published data. Ceiling smudge minimized. Contact your nearby Barber-Colman field office or write for Catalog F 6597-1. For best results, specify combined Air Distribution and Automatic Controls by Barber-Colman.

BARBER-COLMAN COMPANY

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Air Distribution Products • Automatic Controls • Small Motors • Industrial Instruments • Aircraft Controls • Electrical Components • Overdoors and Operators • Molded Products • Metal Cutting Tools • Machine Tools • Textile Machinery



Switches to stitching-triples production!

OPERATION Joining four lengths of sheet metal pipe into one 71/2-foot length.

PROBLEM Find a faster and better way than riveting.

SOLUTION Shift to Bostitch stitching.

RESULT Stitching increased production 300% . . . Bostitch joints also look neater, the bond is tighter. Installers prefer working with stitched pipes.

HOW ABOUT YOU? Do traditional metal-fastening methods really meet your needs for low cost, high production? Let us show you how stitching may give you faster, better and less expensive joining.

WHAT TO DO Call your Bostitch Economy Man. He's listed under "Bostitch" in your phone directory. Or mail the coupon.

Fasten it better and faster with



Please send me fre	e facts on	your me	thod for	fastening
sheet metal.				
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Firm				
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Indiana church gets copper steeple

Architect Says, "We used copper for its attractive appearance and long-lasting service"

The new United Brethren Church in Kendallville, Indiana is typical of the hundreds of smaller jobs relying on the plus values of architectural copper. Howard Dodge & Son fabricated a 28-foot steeple from Chase® lead-coated copper, lofted it to position 85 feet above the ground. Other copper used in the Church includes 640 feet of 30° girth cold-rolled copper gutter plus copings and hot-rolled flashing. All copper involved is by

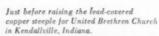
Chase — and purchased from Schaab Metal Products, local Chase Distributor.

Whatever your needs for architectural copper in the buildings you design or build, you'll find your nearest Chase Representative ready to help you with specific products, specifications and recommendations. You can reach him locally, or get in touch with Chase Brass & Copper Co. headquarters, at Waterbury 20, Connecticut.

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WATERBURY 20, CONNECTICUT SUBSIDIARY OF KENNECOTT COPPER CORPORATION





Architect: Alves O'Keefe, Plymouth, Ind.
Contractor: Howard Dodge & Son, Angola, Ind.
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...Your best motor investment is Century



Fast service, precise application engineering! You and your customers have to be sure of getting them, whenever and wherever they're needed. Century has them mapped out, right where they'll do the most good.

A nation-wide network of sales offices, distributors, stock points, service stations. Locations strategically pegged to your requirements...as are Century motor representatives in almost every foreign country.

Put this plus-value together with Century's acceptance through performance, and Century's complete line of motors, 1/20 to 400 HP. More reasons why your best motor investment is Century. Call your local Century man or Authorized Century Distributor now.

General Map NITED STAT

Century

CENTURY ELECTRIC COMPANY

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Why Custom Stainless Jobs Lead to More Profit



Attractive stainless steel sink, drainboard, and counter top in church kitchen is sure to lead to similar profitable jobs for the sheet metal contractor.

Wherever your shop is located, there is profit to be made in custom-built stainless steel sinks, drain boards, counter tops, and other kitchen equipment. Every new church, school, restaurant, and private home is a potential customer for this profitable work. Remodeling opportunities are plentiful, too.

It's easy to get *your* share of this work. People are just naturally impressed by attractive stainless steel installations. Each job you do is practically certain to lead to more. Profits snowball for your firm,

DISTRIBUTOR SERVICES

To get into the business, you don't have to carry a big inventory. The stainless steel you'll need is available from a nearby Armco Distributor. If you're not accustomed to working with stainless, he will gladly assist you with grade selection and fabricating tips.

In addition, most Armco Distributors are equipped to cut or slit the steel to meet your needs. This helps eliminate scrap handling, speeds up fabrication. For the name of the Armco Distributor nearest you, just write us at the address below.

ARMCO STEEL



ARMCO STEEL CORPORATION . 1578 CURTIS STREET, MIDDLETOWN, OHIO

SHEFFIELD DIVISION . ARMCO DRAINAGE & METAL PRODUCTS, INC. . THE ARMCO INTERNATIONAL CORPORATION



Lau Electro-Wheel = more air with less power

Compact, Exclusive Lau Electro-Wheel moves more air against higher statics at minimum sound level

We reversed the rotor and stator so we could center the motor *inside* the wheel on a stationary shaft. Result? More c.f.m. per watt input because the split capacitor motor delivers torque directly to the wheel. See how the venturi openings are virtually unobstructed for easy air flow. And flow it does because patented Electro-Wheel Blowers use Lau's exclusive Preslok® wheels which increase maximum operating speeds 50% over conventional models.

COMPACT DESIGN—Nothing extends beyond the scroll sides. Pre-punched scrolls let you choose any of four angles of discharge. **SERVICE** is practically nil compared to belt-driven blowers. No starting switch! No belt, pulleys, bearing and shaft journals. Just *one* moving part!

QUIET! Shaft is rubber mounted. Motor and wheel assembly is factory-balanced as a unit under its own power—just like it operates.

Available in 9 and 10 inch diameter wheels in full-width and $\frac{3}{4}$ sizes with $\frac{1}{4}$, $\frac{1}{3}$, and $\frac{1}{2}$ h.p. motors.

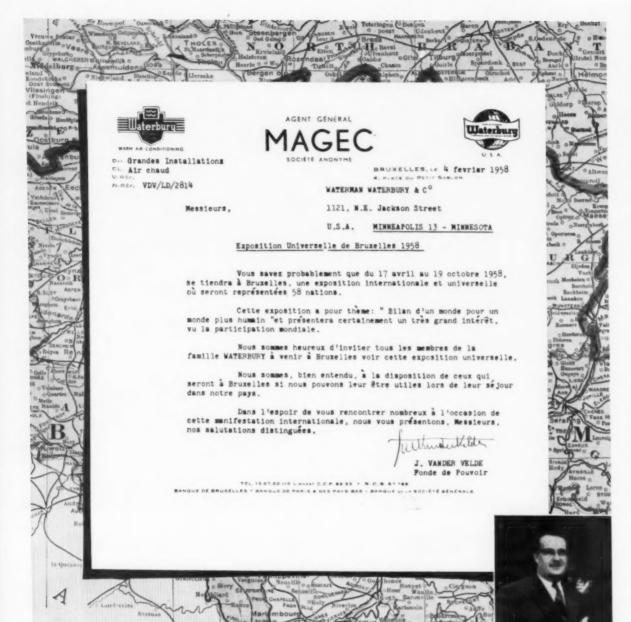
Now's the time to check into Lau Electro-Wheels and other blower assemblies. Lau Blower Company, 2027 Home Avenue, Dayton 7, Ohio. Other plants at Irwindale, California and Kitchener, Ontario.

Here's the Man to Call...

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G. Jensen
6422 Glade Avenue
Cieveland 24, Ohia
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Canford, New Jersey
E. C. Wolford
I. English Village
Dearborn, Michigan
J. B. Wolfare
Benyer Z. Colorado
Ben T. Clark
1421 Court Place
Elmwood Park 25, Illinois
William J. Lahrey
2047 77th Avenue
Pasadena S. California
G. B. Mergenthaler
495 Cliff Drive
Prairie Village 15, Kansas
Victor Stewart
1112 Buena Vista
Sentile 55, Washington
William M. Peistrup
18236 Lago Place
Syracuse, New York
Henry Seebach
360 Alben Street
Vork, Pennsylvania
E. F. Humphrey
227 Lambeth Drive



The BIG Wheel in air moving



J. VANDER VELDE

"Hello" from Waterbury Belgium ...

The above letter from Mr. J. Vander Velde, Waterbury distributor in Brussels, Belgium, is an invitation to the world-wide Exposition to be held in Brussels this year. A Waterbury furnace heats the Centre d'Information at the Exposition. Whether it's Belgium or Iceland, Algeria

or Australia, around the world in 25 countries you'll find the same Waterbury symbols of quality you see on the above letterhead. They mark the dealers who sell and service world famous Waterbury Heating and Air Conditioning equipment.

WORLD FAMOUS FOR QUALITY HEATING AND AIR CONDITIONING



The Waterman-Waterbury Company

1121 Jackson Street N. E.

Minneapolis 13, Minnesota

mow your cam forget interviewent plate-type thum diffiers forever!



electric humidification

For complete information, write for catalog.

THE KEENEY MANUFACTURING CO.

NEWINGTON, CONNECTICUT

EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For additional product information which is available, see this month's New Literature department

Filter Bank Assembly

FILTER BANK ASSEMBLY with "Seal Tight" filter frame featuring polyvinyl chloride gasket for dust-tight seal between filter and holding frame—George Evans Corp., Dept. AA, 121 37th St., Moline, Ill. Gasket pressure locks filter into the holding frame without



clips, springs, latches or locks; it exerts inward pressure of 4.1 lb per lineal in. toward the air filter and molds itself to contour of the filter. Gasket does not support combustion and is unaffected by oil or moisture, the company states. Frames are heavy gage steel, double-coat enamel finished. Filters are held by friction. Filter bank frames fasten on each side with machine screws. Frame is designed for use with aluminum "Lifelong" air filters.

Telescopic Duct Connector

"ADJUSTA-DUCT" TELESCOPIC stack duct connector which slides in or out to length necessary for "fill-in" section, eliminating need for cutting and notching—Duc-Pac, Inc., Dept. AA, Baldwin St., East Longmeadow, Mass. Internal and external lip-seal flanges provide wiping action which assures tight connections, the company states. Units are available in several adjustable lengths.

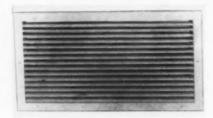
Curtain Wall Panels

"MILCOR" INSULATED, non-load-bearing outside curtain wall panels for commercial and industrial buildings—Inland Steel Products Co., Dept. AA, 4023 W. Burnham St., Milwaukee 1. Fabricated from steel or aluminum, panel is furnished complete with insulation and fastenings. Walls are said to have insulating factor equal to that of 25 in. masonry wall. Sandwich panels present vertical ribbed appearance. Units are assem-

bled with interior steel panel, fiber insulation and steel or aluminum outer panel. Interior panels are 18 or 20 ga steel, in 2 ft widths, ribbed 12 in. on center, with interlocking male and female side joints. Exterior panels are fluted, may be made of plain or prime coated galvanized steel, or of leather grained aluminum. For unheated buildings, exterior panels can be used alone.

Return Air Grille

RETURN AIR GRILLES and registers for heating and summer air conditioning, featuring fixed blades with



curved hemmed edge—Waterloo Register Co., Inc., Dept. AA, P.O. Box 72, Waterloo, Ia. Curved design provides "sight-proof" grilles without decreasing free area, the company states. Hemmed edge strengthens the blade and eliminates sharp edge.

Temperature-Operation Recorder

"TEMPSCRIBE" TEMPERATURE-operation recorder in two standard temperature ranges: -30 to +500 F, and -30 to +120 F—Bacharach Industrial Instru-



ment Co., Dept. AA, 7301 Penn Ave., Pittsburgh 8. Available for series or parallel connection, unit includes bulb type, single pen temperature recorder,

WORLD'S THINNEST UTILITY PLIER

gets <u>in</u> and <u>grips</u> where no other tool will do the job!

"CRESTOGRIP" PLIER No. P210. Retails for \$3.00. If your hardware dealer can't supply you, order from the factory, \$3.00 postpaid.

COMPARE THIN, PARALLEL JAWS, LESS GRIPPING AREA TAPERED JAWS. GREATER GRIPPING LAP JOINT DOUBLE STRENGTH TWISTING STRAIN -BOX JOINT, TAKES THE LOAD SQUARELY UNDER LOAD PROJECTING NUT -- FILISH PINET NO PROJECTIONS TO THICKNESS LIGHT LOAD-BEARING HEAVY LOAD-REARING SECTION, 9/64" x 1/2 SECTION, 12/64" x 5/8" FULL WIDTH, SMOOTH, NARROW HANDLE, LESS COMFORTABLE GRIP COMPORTABLE KNIELING COMPETITIVE CRESCENT LAP JOINT BOX JOINT UTILITY PLIER UTILITY PLIER

GET YOUR COPY!

Ideas and guidance for the professional and amateur mechanic. Forty pages of belp ... profusely illustrated. Proven ways of doing it easier with good hand tools. A new and revised edition of a "how-to-do-it booklet" that mechanics and industrial arts teachers by the tens of thousands have endorsed. Send 10¢ to cover postage, or GET A FREE COPY with the purchase of any CRESCENT TOOL. Ask your local hardware dealer. This offer is limited to the continental U.S.A. SEND A DIME TODAY! OR ASK YOUR HARDWARE DEALER FOR YOUR FREE COPY

Crescent's P210
Utility Plier is an amazingly
versatile tool. Its unusual thinness,
extreme strength and exceptional gripping power insure "pipe wrench" performance equalled by
no other 12 ounce tool. The reason is illustrated
in the sketch above.

No. P210 will grip flat, square, hex or round

No. P210 will grip flat, square, hex or round objects. Jaws are adjustable to four positions up to 1½" capacity. Rust resistant zinc plating. Retails for only \$3.00



Crescent is our frade-mark, registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by

as explained above.

plus second pen for recording electrical operation, to show—on same chart—the exact temperature at all times during test period as well as running time and length of "on-and-off" periods of electrical equipment for air conditioning and heating installations. Unit has 6 ft electrical cord and temperature-sensitive bulb at end of 6 ft flexible capillary tubing for remote temperature readings. Charts and ink are included.

Gas Conversion Burner

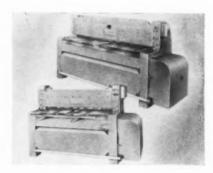
GAS CONVERSION BURNER designed to fit furnace opening occupied by oil burner on residential furnaces— Rheem Mfg. Co., Dept. AA, 7600 S. Kedzie Ave., Chi-



cago 29. Mono-port cast iron burner weighs 10 lb, includes set of three orifices for 84,000, 95,000 or 112,000 Btu output capacity. Controls are installed and ready for connection to room thermostat, power source and fan and limit controls, the company states.

Power Squaring Shears

Two models of 10 ga precision power squaring shears for continuous power operation at full rated

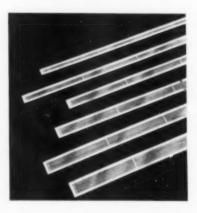


capacity—Peck, Stow & Wilcox Co., Dept. AA, Southington, Conn. Units are in 4 and 6 ft capacities, feature machine tool grade castings, heavy fixed beam

channel holddown, safety square pin clutch. Other features are single or repeat stroke (62 per min.), four-edge blades, high speed shaft, built-in blade clearance, precision gaging, full length bed T slot.

Linear Grilles

EXTRUDED ALUMINUM linear type grilles for side wall, window sill and floor application in heating, cooling and ventilating systems—*Titus Mfg. Corp., Dept. AA, Box* 810, *Highway* 20 *West, Waterloo, Ia.* Grilles are in two basic types: model C-2500 with louvers fixed



at zero deg deflection, and model C-2615 with louvers fixed at 15 deg deflection. Units are in 1½, 2, 2½, 3, 3½ and 4 in. widths, in lengths of one-piece construction up to 8 ft. Accessory equipment includes several widths of extruded aluminum borders; straightening vanes; linear, opposed blade and multi-shutter dampers; and blank-off strips.

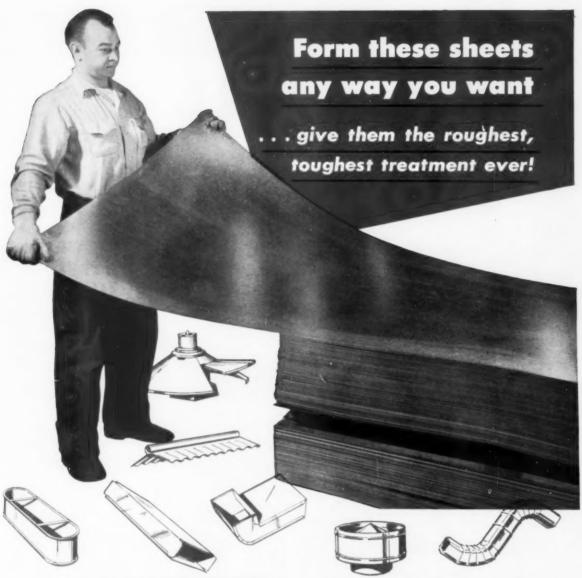
Metal Duct Stitcher

METAL STITCHER for assembly of ducts and fittings for heating and air conditioning systems—Acme Steel Co., Dept. AA, 135th St. and Perry Avc., Chicago 27. Unit drives round wire stitch to join metal to metal or other surface. One model permits placement of stitches parallel to air stream and within ½ in. of any corner; second model stitches at 90 deg angle to air stream, according to the manufacturer.

Ceiling-Mounted Air Conditioner

MODEL CH HORIZONTAL TYPE blower evaporator which can be ceiling mounted in stores, shops, offices, etc.—Betz Div., Bohn Aluminum & Brass Corp., Dept. AA, Danville, Ill. Unit can be mounted directly in conditioned space or mounted remotely and connected to duct system. Filters are removable from either side. Rated capacity is 400 cfm per ton. Duct or grille models are in capacities of 2, 3, 4, 5 and 7½ tons.

(Continued on page 127)



GREAT WESTERN GALVANIZED SHEETS take every crimp, every lock seam, every bend, fold and roll without flaking, chipping, cracking or peeling!

Try these sheets on your most difficult jobs. You'll be amazed at how easily they form, how sparkling bright, good looking and strong the finished jobs come through.

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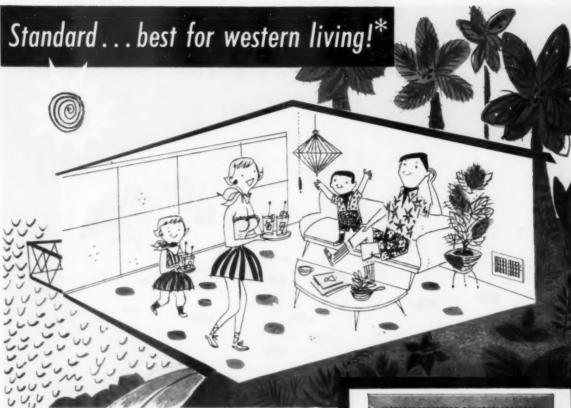
Call Great Western: HEmlock 4-5800

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2300 W. 58th St., Chicago 36, HE 4-5800

Milwaukee Division: 2475 W. Hampton Ave., Hilltop 4-3092 REPRESENTATIVES IN PRINCIPAL MIDWESTERN CITIES



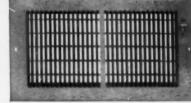


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You can duplicate the clean, refreshing atmosphere of golden weather, indoors, with Standard Stamping's No. 601 wall or baseboard registers. These registers distribute a precise volume of warm or cool air throughout the conditioned space, without blasts, hot spots, or cold corners. They make interiors as uniformly comfortable as a lanai on the best of days, and they're silent as a night breeze. Features include a new screw stop feature that permits setting the damper for fractional volume control. No. 601 registers are easy to install, attractively styled, available for immediate delivery, and cost no more than ordinary registers!

Mail the coupon for prices and new FREE catalog of the complete Standard line of registers and grilles!

*And for comfortable living everywhere!



STANDARD'S NEW 600 SERIES

Available as No. 601 Wall Register; No. 603 Baseboard Register; No. 602 Baseboard Intake; No. 600 Wall Grille

VERTICAL BARS ADJUSTABLE FOR PERFECT AIR DEFLECTION

ONE PIECE FRAME

NEW DESIGN OPERATING MECHANISM INSIDE FRAME

FAST, EASY, NO-SMOG INSTALLATION METALLIC FINISH

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Gentlemen: Please send me your new catalog showing the complete line of Standard Stamping Registers and Grilles.

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ROBERTSHAW Unitrol 1000*



Start with Basic Unitrol 1000 for manual space heater operation.

- 100% automatic shut off of pilot and main burner
- A & B gas valves, pilot filter and pilot adjustment

Install any of these hydraulic thermostatic units for automatic space heater operation.

- · Snap action, self-contained
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- Snap to high flame—throttle down to bypass—snap off
- · Throttle to bypass

or change over to wall thermostat operation by installing:

· 24 volt electric unit

Gas pressure regulator improves ignition (optional on all models)



* for space heater applications

* cuts inventory costs

- * standardizes manifold assemblies
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GRAYSON CONTROLS DIVISION . LONG BEACH, CALIFORNIA

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Coolerator

EXCLUSIVE Lectrofilter HELPS INCREASE
CENTRAL AIR CONDITIONING SYSTEMS SALES VOLUME!



1958 Self-Contained Central Air Conditioners—2, 3 and 4 hp models.



1958 Remote Air Conditioner Condenser Sections

— 3, 4 and 5 ton models.

Coolerator's unique development—Lectrofilter—has tremendous impact as an important health feature in the sale of central air conditioning systems. This electrostaticallycharged filter collects and holds tiny grains of pollen and dust—a boon to allergy sufferers. Standard equipment, yet all Coolerator Remote and Self-Contained models are competitively priced!

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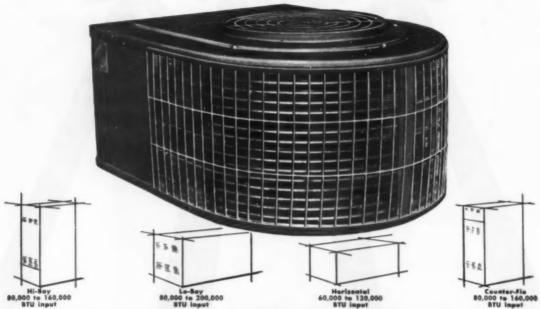
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There's a New Packaged Unit, Too! Heatwave has a new packaged air conditioning unit designed for existing systems and hot water or steam heat systems. This self-contained unit is available in 23,000 and 36,000

BTU capacity models. Fully rated and tested under A.S.R.E. conditions in Southwest's own laboratory.

This new unit makes many more cooling applications possible.



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HEATING

HEATWAVE

AIR CONDITIONING

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equipment developments

(Continued)

Louver Rail

"LOUVERAIL" galvanized metal strips with button indentations which are slotted to hold louver blades—Cain Mfg. Co., Dept. AA, 1111 N. 5th



Ave., Birmingham, Ala. Rail is 4½ in. wide, and can accommodate removable, hinged or stationary louvers from 3¼ to 4 in. thick. Split in half, rail will make louvers from 1¼ to 1¾ in. thick. Two 50 ft lengths (one left and one right rail) are coiled together in dispenser carton. Button indentations are slotted to hold louver blades, which are peened with hammer for finished unit.

Press Brake

"CHICAGO" 25 TON capacity press brake which bends 60 in. of 14 ga or 72 in. of 16 ga mild steel—Dreis & Krump Mfg. Co., Dept. AA, 7400



S. Loomis Blvd., Chicago 36. All-steel welded frame and deep section bed and ram of rolled steel plate are de-

DURO DICT TAPE



Now! An exclusive infra-red temperature curing process puts extra holding power into every inch of Duro-Dyne Tape.

Recognized as a positive, economical means of improving the quality of duct and insulation sealing jobs, Duro-Dyne Duct Tapes are specifically engineered to incorporate every feature required for perfect sealing jobs.

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Designed and engineered by McQuay, and suitable for all fuels, (Type A) this new package chimney has a 7" stainless steel flue with aluminized steel interliner and outer casing. The interliner is supported by the exclusive McQuay stainless steel tension spring spacers for strength, rigidity and durability.

This McQuay thermo siphon design permits quick drafts and even temperatures from top to bottom for peak efficiency. There is nothing to deteriorate, nothing to collect soot, Roof housing is large, measuring 16" x 20" with a 20" x 24" cap.

For the best results, and for greatest economy, recommend and use this McQuay package chimney on every job. Territories are now being assigned. Write McQuay, Inc., 1653 Broadway Street N.E., Minneapolis, Minnesota.

Meets the Original and More Severe Underwriters' Laboratories Standards 103, March, 1956



ECONOMY—Costs from one-third to one-half as much as brick installed. All pre-assembly has been done to eliminate costly on-the-job time and labor.

SAFETY—Listed under the re-examination service of Underwriters' Laboratories, Inc., and on the approved list of F.H.A. and V.A.

QUICK AND EASY INSTALLATION

—Average installation time is less than
one hour after openings are prepared.

LONGEST SERVICE LIFE—Flue is of stainless steel to permanently withstand effects of combustion gases. Starter box and starter sections are in one unit. Standard 24", 18" and 12" sections give any desired length.

McQuay stainless steel

tension springs separate and firmly position stain-

less steel flue.

LIGHT WEIGHT—Load on support joists is only 9 pounds per foot of chimney length.

SHIPPED COMPLETE – with easy-tofollow instructions for installing. Units are individually packaged.

McQuay INC. AIR CONDITIONING HEATING REFRIGERATION

equipment developments

(Continued)

signed to provide permanent alignment and minimum deflection under load. Variable speed drive gives speed range from 20 to 50 strokes per minute. Releasing clutch stops ram. Manual bed adjustment provides 3 in, variation in die space.

Oil-Fired Water Heaters

GLASS AND COPPER lined, oil-fired water heaters in 30 gal capacity with



120 gal recovery and 50 gal capacity with 150 gal recovery at 100 deg rise per hour—Quiet Automatic Burner Corp., Dept. AA, 33-35 Bloomfield Ave., Newark 4, N. J. Featured are factory-mounted safety relay, electrical wiring harness and aquastat. Glass lined models have side connections to hook up to additional storage tanks. Unit can be cleaned from top without disconnecting hot and cold water lines.

Unit Heater

Series GB gas-fired blower type unit heaters in seven sizes from 50,000 to 310,000 Btuh—Modine Mfg. Co., Dept. AA, 1580 DeKoven Ave. Racine, Wis. Burners are die-formed stainless steel; "self-cleaning" slotted burner ports have sharp edges to resist lodging of dirt or scale. Aluminized steel heat exchanger has individually fired tubes; flame from burner ports is fired directly into each tube and extends continuously



Attach face after plastering to eliminate clean-up time

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Air Control

NO. 188 SERIES BASEBOARD PERIMETER DIFFUSER



Adjusto-Bottom for installing in any position over duct



Patented Rotary Damper — an exclu-



YOU CUT INSTALLATION TIME three important ways: (1) Face snaps off for easy access in attaching diffuser — can be replaced after finished floor is laid and wall is plastered to assure attractive installation with no clean-up time. (2) Adjusto-Bottom permits installing in any position over duct. (3) Famous Adjusto-Stop allows system to be balanced at face of diffuser.

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NOTE: For same installation features in special economy unit, see Air Control's No. 170 Series Baseboard Perimeter Diffuser with conventional damper at left. 34 sq. in. free area.

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- WHEN TO INSULATE
- WHY INSULATE

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equipment developments

(Continued)

from front to rear. Combustion air is admitted through hooded inlets beneath tubes. Adjustable motor pul-



leys permit varying blower speed; blowers are said to operate against static pressures to 0.4 in. Blower speeds are under 900 rpm.

Truck Bodies

LINE OF SERVICE and utility truck bodies featuring slam-action, safetycatch paddle locks for compartment doors-Service Body Div., Morrison



Steel Products, Inc., Dept. AA, 601 Amherst St., Buffalo, N. Y. Flush mounted locks have safety catch striker plates with extra catch to prevent door from accidentally opening when not fully closed. Vertical doors have single-latch linkage; horizontal doors have two-latch linkage at both ends

Oil Burner

MODEL S-3 OIL BURNER in 6 to 10 gph capacity models designed for



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There are no better fasteners than USA-made Southern Screws. Over a billion in stock, available from our warehouses in New York, Chicago, Dallas and Los Angeles . . . Let us quote Southern quality screw prices on your requirements. Compare with the cost of conventional screws. Address: Southern Screw Company, P. O. Box 1360, Statesville, N.C.



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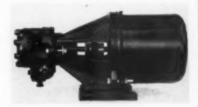
equipment developments

(Continue

cleaner and quieter operation than previous models—Sun-Ray Burner Mfg. Corp., Dept. AA, 139-24 Queens Blvd., Jamaica 35, N.Y. Featured are aerodynamically designed housing, delayed action oil valve and built-in electronic controls mounted and wired. Thermostat and standard limit control are included.

Fuel Oil Pump Unit

Models BJ-100-M single stage and BH-100-M two stage boost pump assembly to supply no. 2 or lighter fuel oil to one or more overhead direct fired unit heaters or furnaces—Sund-



strand Hydraulic Div.. Dept. A.4, 2210 Harrison Ave., Rockford, Ill. Pump is available with or without motor, is intended to supply auxiliary tank with automatic oil level switch. Both models have cutoff valve and strainer. Delivery rate is 30 gph with no. 2 oil. Motor is rated at ½ hp. 115-v, 60 cycle, 1725 rpm. It is direct-connected to pump by flexible closed coupling with oil-resistant neoprene insert.

Year 'Round Unit

"COMFORT CENTER" central year round air conditioner with cooling section in remote arrangement—York Div., Borg-Warner Corp., Dept. AA, 310 S. Michigan Ave., Chicago 4. Designed for replacement or new home market, unit is compact enough for variety of installation locations, according to the manufacturer.

Vacuum Cleaner

MODEL 65 "TURBO-VAC" vacuum cleaner and blower with 1 1/3 bu or 9 gal capacity—Kent Co., Inc., Dept.

Bid Lower and Make More

ON SCHOOL JOBS.





In slab perimeter heating or combination heating and cooling systems!

sonoco Sonoairduct enables you to save installation time, labor and money—without lowering the quality of construction! It is easy to handle and level. Available in 23-sizes—2" to 36" I.D., with the larger diameters ideal for schools, shopping centers. churches and industrial heating and ventilating. Widely used and approved by contractors. Meets and exceeds F.H.A. criteria and test requirements for products in this category.

Made in specified lengths up to 50' long, and can be sawed to exact lengths on the job. Aluminum foil lined. Free installation manual available. See our catalog in Sweet's.

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South Land Hotel Court, Paducah, Kentucky

"In the past, many tourists failed to stay at our Motel because they questioned the safety of gas wall heaters and vents," says Mr. Jesse Clymer, owner of the modern 36-room South Land Hotel Court, Paducah, Kentucky.

Mr. Clymer took the problem to his Metalbestos representative... who first made certain that each wall heater was correctly vented according to the Metalbestos "Safety System" Gas Vent Tables. He then gave visible reassurance to prospective occupants by prominently displaying the Metalbestos "Safety Seal" in each of the South Land's 36 rooms. "Since that time, we haven't lost a single customer who was doubtful about gas heaters and vents." reports Mr. Clymer.

Give your customers this same assurance by displaying the Metalbestos "Safety Seal" ...sign of safe, trouble-free gas venting.

Find out how the Metalbestos Gas Vent Tables can simplify vent installations . . . maintain your quality reputation. Write Dept. B-4.

Stocked by principal distributors in major cities. Factory warehouses

in Akron, Atlanta Chicago, Dallas Des Moines New Orleans Los Angeles Woodbridge, N. J.



equipment developments

(Continued)

AA, 435 Canal St., Rome, N. Y. Tank is heavy ga steel in seamless construction with interior lining to prevent rusting. Unit has 1 hp bypass motor housed in removable power unit which can be used in combination with "Drum-Seal" for use in extra-capacity furnace cleaning operations. Bypass motor is cooled by separate current of air and protected against dust, dirt and water. It has four ball-bearing swivel casters for free wheeling.

Air Meter

No. 160 AIR VELOCITY and static pressure indicator which shows direct readings for furnace draft, pressure drop across air filters, duct air



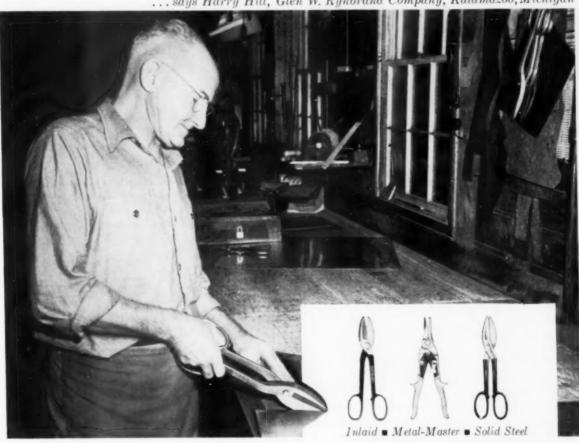
velocity, supply and return grille velocities—F. W. Dwyer Mfg. Co., Dept. AAC, P.O. Box 373, Michigan City, Ind. Air velocity is registered from 260 to 1200 fpm on low side and 1000 to 4000 fpm on high side. Static pressure is 0.005 in. to 0.09 in. water, low range, and 0.05 to 1.0 in. water, high range. Included are molded plastic probes for grille velocities, angle connector and tubing lead, slide rule velocity calculator, maintenance kit and instructions.

Fastening Tool

"FLITE-CHEK" powder actuated fastening tool which stops an overdriven

"WISS SNIPS OUTLAST AND OUTCUT ALL OTHERS I'VE USED IN 34 YEARS!"

... says Harry Hill, Glen W. Rynbrand Company, Kalamazoo, Michigan



"Since 1923, when I became a mechanic for Glen W. Rynbrand Company, I've had the opportunity to try just about every kind of snips made," says Harry Hill.

"Take it from me, none compare with Wiss. Not only do Wiss Snips feel and cut better—they last far longer than other brands. You can use them daily for years and they still stay sharp... even on tough 16 gauge metal."

Mr. Hill adds his voice to the growing number of craftsmen for whom only Wiss Snips will fill the bill. Made by metal craftsmen for use by metal craftsmen. Wiss snips actually take as many as 200 steps to produce—many by hand. No wonder you can't miss with Wiss!

wiss inlaid blade snips cut with lasting sharpness, tremendous power. High carbon crucible steel blades, welded to hot drop-forged frames. Complete range of sizes, 11½" to 17". Models: straight cutting, circular cutting, curved blades, and bulldog notching.

wiss metal-master aviation snips, with amazing compound action, are preferred by many for their compact size, tremendous power, and ability to make intricate cuts. Left, right and straight cutting models, only 10" long, cut 18 gauge metal. Bulldog combination model, 91%" long, cuts 16 gauge stainless steel!

wiss solid steel, are available in straight cutting, circular cutting and bulldog models from 7" to 16". Priced slightly lower than inlaid snips.



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World's Largest Manufacturer of Shears, Scissors, Pinking Shears, Skalloping Shears, Metal Cutting Snips and Garden Shears

TAKE THE GUESSWORK OUT OF ESTIMATING

High Velocity Air Movement Systems

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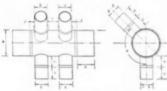
SPIRAL Lockseam PIPE

Spiral pipe, matched fittings and sound absorbers
. . . all custom made to cut costs . . . quicken and pin-point estimates. Next time, specify United's spiral pipe fitings and sound absorbers . . . all in one complete package.

Spiral Pipe Standards and Sizes

• 26 gage zinc-coated steel — diameters 3" through 8" • 24 gage steel—9" through 22" • Standard length 12'—lengths to 20' if required • Available in any specified metal 20 to 30 gage







Write For Free Catalog Showing Detailed Specifications and Applications



548 S. Drexel Ave. Columbus 9, Ohio Telephone: BElmont 5-3495

equipment developments

(Continued)

fastener before it can pass through thin work surface—Ramset Fastening System, Winchester-Western Div., Olin Mathieson Chemical Corp., Dept. AA, 12117 Berea Rd., Cleveland 11. Tapered intercepter jaws prevent passage of overpowered fastener or one that encounters soft or thin spot in work surface. Fastener is stopped before it leaves the tool without damage or jamming. Unit is said to sink fastener in 1 in. or less of steel. Unit is designed for threaded studs. Fasteners are ½ in. with plastic tips.

Soldering Flux

No. 302 ORGANIC BASE, non-corrosive soldering flux for stainless steel and nickel-chrome alloys—Anchor Metal Co., Inc., Dept. AA, 966 Meeker Ave., Brooklyn 22, N. Y. Designed to strip tenacious oxides from material to be soldered, the flux has organic base which will not attack metal. Flux is supplied in concentrated form that may leave tacky residue on work, which can be wiped off. Thinner can be used to dilute flux as necessary.

Dirty Filter Warning

"CLEAN-GLO FILTER LIGHT" warning signal which illuminates when filters need replacing—Rybolt Heater Co., Dept. AA, 615 Miller St., Ashland, O. Included in all the company's air conditioning systems, the light is part of the thermostat control.

Roof Gutter

"GUARD GUTTER" designed to prevent backing up of rain water and snow—Arthur E. Wolf, Dept. AA, 15023 Merimeade Dr., Cleveland 11, O. High back and protective top flange prevent back flow of water over rear of gutter, under shingles and into the building. Protective flange is integral part of gutter. Water is forced to flow toward and over the front edge, which is perforated, if obstructions are encountered. Wire mesh can be added

to prevent accumulation of debris in gutter.

Air Filters

"ABSOLUTE" FILTERS with redesigned filter medium of glass and asbestos fibers—Cambridge Filter Corp., Dept. AA, 738 Erie Blvd., E., Syracuse 3, N.Y. Unit is said to remove 0.3 micron diameter particles; rated capacity of 24 × 24 × 11½ in. filter has been increased to 1100 cfm at 1 in. W. G. Number of pleats has been increased to incorporate over 200 sq ft of media in the 24 × 24 × 11½ in. unit.

Weld Screws

"RIMGUARD" WELD SCREWS with protective rim around periphery of head and four weld projections—Parker-Kalon Div., General American Trans-



portation Corp., Dept. AA, Clifton, N. J. Rim limits amount of pressure that may be applied to projections during fusing stage so weld metal is properly diffused and confined, to minimize spatter and flash, burning and discoloration, and distortion. Degree of fusion is controlled by size of the four projections and area of contact. Projections are on top or underside of the head. Both types are made in diameters from no. 6-32 to no. 3% in.-16, and in lengths from ½ to 2 in.

Electric Dehumidifier

"IMPERIAL AUTOMATIC" electric dehumidifier with automatic humidistat which can be pre-set to give desired moisture control—Mitchell Mfg. Co. Div. of Cory Corp., Dept. AA, Again in '58

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Bryant Manufacturing Company, Indianapolis, Ind. Bryant Manufacturing, Ltd., Toronto, Canada















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When that 'tough' customer says . . .



Just tell him ...





There's no getting around it; there are places where a suspended gas unit heater would do the heating job, but it just wouldn't look right. Reznor dealers have an advantage when jobs like this come up... they can substitute a Reznor floor model.

Sometimes a whole installation will be floor models. But more often floor units will be used to supplement an installation of suspended heaters. For example, in a factory to be heated with suspended units, the customer may prefer floor models for offices, reception rooms and other areas where appearance is more important and space-saving less of a consideration. When you sell Reznor you can bid and sell the whole job. You not only have a floor model . . . you have the best there is.

The Reznor FlexiTemp FM has advantages in design, construction and operation no other room heater can match. Your nearby Reznor distributor can give you the complete story . . . and he can fill your orders right out of stock, too. If you don't have all the details on this popular heater, give him a call . . . now.



Rezner Manufacturing Co., 6 Union St., Mercer, Pa.

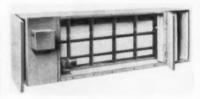
equipment developments

(Continued)

3200 W. Peterson Ave., Chicago. Portable unit has wheels and handle, Unit is said to control humidity in 14,000 cu ft area, removing 15 to 24 pt of water from air in 24 hr. Excess water can be removed to large bucket, through hose to drain, or directly to drain with pipe fitting. Model D5H is rated at 1/5 hp, 115-v, a-c. Seven control settings are provided at top of unit.

Dry Air Filter

"FAR AIR ROLL-KLEEN" type H automatic filter for all types of air handling units—Farr Co., Dept. AA, Box 45187, Airport Sta., Los Angeles



45. Filter features heavy gage metal frame which holds large, replaceable roll of glass fiber filtering media and power driven take-up spool. Electrical controls govern automatic movement of media across face of filtering area. Filter operates as integral section of air handling unit.

Blower Wheels

Series 150 blower wheels in 15 in. diameters, ranging from 6 to 16 in. in width—Morrison Products, Inc., Dept. AA, 16816 Waterloo Rd., Cleveland 10. Units deliver up to 4800 cfm. Standard size bores are 34, 1 and 13/16 in. Wheels are made from cold rolled steel, processed through multistage wash to phosphotize wheels prior to painting.

Humidistat

Model 80 and model 82 humidistats for dehumidifiers and humidifiers, respectively—Export Sales & Service, Bendix International Div., Bendix Aviation Corp., Dept. AA, 205 E.

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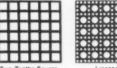
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Above illustrations shown in reduced size

Harrington & King

Chicago Office and Warehouse 5649 Fillmore St., Chicago 44, III. New York Office and Warehouse 114 Liberty St., Dept. AA, New York 6

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New hidden, patented* filter

-3 times more power

The new Premier Model P-950 Vacuum, with the new hidden, non-clog filter, is the only true low cost furnace cleaner. The hidden filter gives you more usable capacity than other vacuums twice the size. You can clean 4-5 home furnaces without emptying. Yet it is so small it fits easily on the floor of your car. Over 2000 in use. Other models range from 16-48 qt. usable capacity, including 3 in 1 units: wet or dry, blower or shoulder vac.

*patent number 2814357



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equipment developments

Cantinued)

42nd St., New York 17. Unit operates on 115-v, 60 cycles, a-c single phase. Three basic units are available: a model for outside mounting and two stripped-down units for inside mounting.

Flexible Coupling

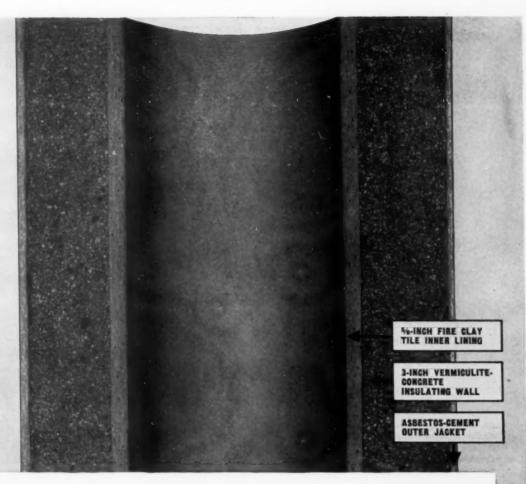
"VENTIDUCT" flexible coupling for making joints in ventilating, heating and air conditioning duct systems without welded, riveted, screwed or bolted flanges—Marman Div., Aeroquip Corp., Dept. AA, 11214 Exposition Blvd., Los Angeles 64. Coupling



is stainless steel. Segmented coupling strip is in 3 ft lengths; clips are in pairs. This length accommodates sizes from 3 in, to 12 in.; for diameters over 12 in., two or more coupling strips and pairs of clips can be used. Coupling material is cut to developed circumference of outside diameter of formed flange; clips are mounted on each end and locking tabs are crimped between segments. Coupling is wrapped around mating flanged ends of duct, and nut and bolt are tightened with screwdriver.

Air Filter

"LIFETIME" air filter with plastic media and metal frame—Permatron Corp., Dept. AA, 4840 N. Linder Ave., Chicago. Charged media is woven, high density plastic. Standard thickness is ½ in.; for thicker models, two or more individual ¼ in. metal-framed filters are mounted



Masonry flue gives packaged chimney high draft

Masonry flue sections of the Van-Packer Chimney provide greater draft, assuring more efficient furnace operation and cutting needless furnace service call-backs. Masonry sections are quieter—won't transmit furnace or fan noises. You profit on the *entire* heating system when you install a furnace and a Van-Packer Chimney. See your Van-Packer jobber (in Yellow Pages under "Chimneys—Prefabricated") or write for Bulletin RS-1-11.



Attractive housing in red, buff, white, or gray brick colors, with natural mortar lines.



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Static pressure readings from .005 to 1.0 inches of water.

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Over-Fire and Smoke Pipe Draft



WRITE FOR BULLETIN 8-9

F. W. DWYER MFG. CO.

P. O. Box 373F Michigan City, Indiana

equipment developments

(Continued

in steel frame, separated to provide "accumulator chamber" where agglomeration of particles which escaped first filter takes place.

Insulation Board

"ASBESTOLUX" incombustible insulation board for fabrication of ventilating, exhaust and heating ducts— North American Asbestos Corp., Dept. AA, 3210 Board of Trade Bldg., 141 W. Jackson Blvd., Chicago 4. Made of long-fibered asbestos bonded under high pressure steam



with silica, board weighs about 14 oz per sq ft in ½ in. thickness. It is resistant to fire, heat, moisture, steam, chemicals and corrosion. Board, in ¼ or ¾ in. thicknesses, is shipped in 4 × 8 ft sheets. Duct sides are cut by power saw; steel angle brackets are screwed into cut pieces without pre-drilling; asbestos cement is applied to protect brackets and reinforce joints.

Furnace Line

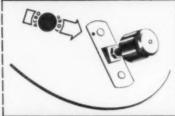
BGK SERIES of "Utilaire" (highboy) and "Inversaire" (counterflow) furnaces in sizes ranging from 75,000 to 250,000 Btu and from 75,000 to 200,000 Btu, respectively—Berger Furnace Div., Burnham Corp., Dept. AA, 4th & Main St., Belle Vernon, Pa. Available in "Deluxe" and "Eldorado" models, furnaces have heavy gage steel heat exchanger sections, V-flame burners. Removable "floating" pan cradled in felt contains blower and motor. "Eldorado" models have more stylized cabinets.

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STEINEN DRAFT REGULATORS are perfectly balanced. Combination draft setter—sets draft automatically

draft setter—sets draft automatically —stabilizes balance—no parts to be added.



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STEINEN DRAFT REGULATORS

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STEINEN DRAFT REGULATORS

are available in a wide selection of models from 6" to 32" to meet all residential and commercial requirements.

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COMBINATION

Controls



AUTOMATIC RECYCLING MANUAL OPENER (optional)

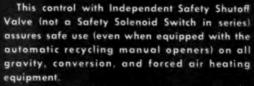
SERIES "SLS" SAFETY REGULATOR WITH 100% SHUTOFF IN CONJUNCTION WITH QUIET AUTOMATIC MAIN GAS VALVE

SLS 101-1/2 SLS 201-1/4





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Since the CONTROL, a complete package, is an all-in-one-unit, the installation and piping is easy—no individual devices to crowd together into limited space. Inventory problems are also simplified.

Field service is a cinch! Simply remove four screws to dismantle either the safety or solenoid head. Why not check the THERMAC MODEL SLS on your furnaces immediately. You'll enjoy top performance and save three ways: installation time, installation space, and overall control cost. Send for prices and delivery.

Distributed in Canada by ONTOR LIMITED

(Continued)

Air Velocity Calculator

POCKET-SIZE air velocity calculator for on-the-job air conditioning, heating and ventilating calculations— F. W. Dwyer Mfg. Co., Dept. AA-C, P. O. Box 373, Michigan City, Ind. Two-color plastic calculator meas-



ures 3×6 in. Front side of sliding scale shows air velocity corresponding to impact pressure from 0.01 to 10 in. water, compensated for air density. Back side provides means of determining exact air density with corrections for relative humidity, dry bulb temperature and barometric pressure. Values are shown in transparent plastic windows. Calculator is included

with pitot tubes and air velocity meters, or free on request on company letterhead.

Air Coolers

"Palm-Aire" and "Sno-Breeze" lines of commercial and industrial coolers designed for cooling applications which are too large to be handled by ventilation alone —Palmer Mfg. Corp., Dept. AA, 2200 W. Fillmore, Phoenix, Ariz. Specifically engineered for installation on roofs or in attics where 100 percent outdoor air is available, unit is in single and two-speed models, in various sizes. Unit discharges downward; filter area is increased over previous side-discharge models, and duct elbow at side is eliminated. Recirculating water pump is optional.

Aluminum Cleaning Compound

"ALUMATREET" CHEMICAL FORMULA which cleans and creates absorptive crystal coat on aluminum, and provides effective paint lock—Farrelloy Co., Dept. AA, 1245 N. 26th St., Philadelphia 21. Compound is said to minimize blistering and peeling of paint, prevent creeping of corrosion from scratches under the layer of paint, and remove oxide to restore aluminum or alloys. It is said to convert alkaline coating to non-metallic finish. It dries at room temperature, may be applied without surface preparation.

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- No n-overloading centrifugal wheel . . .
 sealed ball bearings.
- Vibration isolators for each motor and speed assuring quiet, smooth operation.
- operation.

 Direct air flow outlet.
- Spun steel entrance cone and mounting base.

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GREENHECK FAN & VENTILATOR

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WITH A CHECKUP
(See your doctor)

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MOR-SUN SALES-GRAM

MOR-SUN "add-on" units open up thousands of new hot prospects for home air conditioning ... EASY TO SELL AND INSTALL AT TOP-DOLLAR PROFITS

Any home with a forced warm air heating system is now a red-hot prospect for new Mor-Sun Remote Air Conditioning! Easy to sell, too-low in first cost-attractive cabinets-no water required, no space wasted! Compact Evaporator Section easily installed on new or existing furnace-Condenser easily located outdoors or anywhere out of the way!

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EFFICIENT CONDENSER - oversize condenser coil, continuous nonleak copper tubing with aluminum fins for high radiation. Powerful blower. Freon overcharged for purging. Safe - U/L listed for indoor or outdoor installation. Thermal overload and hi-lo pressure cutout.

WIDE CAPACITY SELECTION-2, 3 and 5 H.P. for most home cooling requirements.

EASY INSTALLATION—entire system fully charged.

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MOR-SUN MRA SERIES Remote Air Conditioner mounted on MOR-SUN "L" Series Lo-Boy Forced Warm Air Furnace.



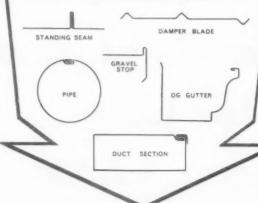


Mor-Sun Division, MORRISON STEEL PRODUCTS, INC., 609 Amherst St., Buffalo 7, N. Y.

In Canada, Mor-Sun Limited, 62 Laurel St. East, Waterloo, Ontario.

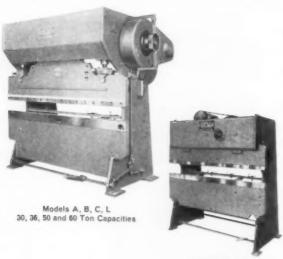


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Air Cooled Condensing Unit

Model 1203-4, 3 hp air cooled condensing unit which can be installed in 8.5 sq ft space—Airtemp Div., Chrysler Corp., Dept. AA, 1600 Webster St., Dayton 4, O. Designed for application to new or existing warm air heating systems, unit features V type cool-



ing coil, vertical evaporator blower unit or combination coil-blower unit, hermetic compressor, bonderized steel cabinet, magnetic starter, overload protection and high-low pressure cutout, built-in service valves and service gage connections, permanentlylubricated ball bearings on blower and motor, combination receiver and refrigerant liquid purifier. Unit can be used outdoors.

Control for Gas Heating Equipment

"Unitrol 1000" COMBINATION control for gas-fired heating equipment, which can be converted from manual to either hydraulic bulb thermostat operation or an electrically-operated room thermostat—Grayson Controls Div., Robertshaw Fulton Controls Co., Dept. A.A., Long Beach 5, Calif. Basic control provides for manual operation of space heating and central heating equipment; hydraulic bulb or bimetal room thermostat may be added. Four types of controls can be used: 1) snap action, self-contained hydraulic thermostat; 2) snap full-on with bypass of hydraulic thermostat; 3) snapon to high flame with throttle to bypass hydraulic thermostat; 4) room thermostat independently operating gas valve (24-v). Gas pressure regulator is optional on all models.

Electric Coil Heaters

ELECTRIC HEATERS for installation in duets or in packaged air conditioners, available in standard sizes to fit most applications—Industrial Engineering and Equipment Co., Dept. AA, 24 Hanley Industrial Ct., St. Louis (Brentwood) 17, Mo. Designed for booster or supplementary heating, or for prime heating where

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Ever since Follansbee introduced the new Bermuda Terne roof, architects and builders have been growing more enthusiastic about it . . . and using it. The architect likes it because it allows him to put new, distinctive design on the roof and get those long lines which add so much to the appearance of the contemporary house.

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SHUR - FLO

Draft Inducer-Regulator

with uncertain draft anymore since Walker brought out this low-priced draft inducer-regulator combination. Now, I install Walker inducers on all my jobs. That puts me way out ahead, because with good draft I know every job will be exactly right from the start.

"Most Efficient Draft Control System Ever Made"

Say Heating Contractors, Architects, Builders & Home Owners

Here's an economical answer to every draft problem from older heating installations to modern, low-roofed houses. The new Walker Shur-Fio (Pats Pending) is the surest draft system ever devised—and the most economical. Walker's fan operated draft inducer moves ONLY flue gases... does not suck in outside air. No wonder it runs quieter, costs less, requires less power. Walker does a complete job of inspirating draft and controlling excess draft. Models available for oil, gas, and coal fired installations.

Perfect for modern homes whose lower chimney heights present a draft problem, the new Walker Shur-Flo is popular with heating contractors and builders because it installs quickly at any angle — vertically, horizontally or at a pitch. Economical in cost, it is highly profitable since it virtually eliminates costly call-backs and corrections. The carefully balanced propeller type fan and small but sturdy motor assure quiet trouble free operation, free from vibration.

For full details see your supplier or write direct.

Other Famous Walker Draft Controls serving 25,000,000 Users.









Royal Walk Purple Junior

Junior Line * Double Swing * Chimney Cap
MFG. AND SALES CORP

1730 Penn St., St. Joseph, Mo.

equipment developments

(Continued

electricity is sole source of heat or where conditions require electric heat, the duct heaters are made to specification if standard sizes do not fit. They are normally supplied for installation in horizontal ducts. Package air conditioner models are designed for reheating of conditioned air, and for prime or supplementary heating applications in heat pumps, etc. Both models consist primarily of high grade resistance coils located and insulated by lava insulators in aluminized steel brackets. Capacities cover virtually any application, the company reports.

Air Cooled Condenser

Low SILHOUETTE air cooled condensers in 2 to 7½ ton models, designed for residential applications—Res-Dent-Air Div., Peden Equipment Co., Dept. AA, 4512



Mt. Vernon, Houston, Tex. Compact unit has built-in channels for compressor mounting if desired. Cabinet is heavy gage bonderized metal. Unit is designed for quiet operation, according to the manufacturer.

Spot Welder

Model SR O rocker arm spot welders in standard "O" size frames, with 30 or 50 KVA transformer and variable throat depth—Sciaky Bros., Inc., Dept. SR O-AA, 4915 W. 67th St., Chicago. Six arm lengths range from 12 to 42 in. Features are rigid frame, transistorized control with plastic coated printed circuitry and plug-in components. General purpose welder is designed especially for shop conditions where relatively light gage metals are handled.

Blower Assembly

"Series A Preslok" blower assembly with 9, 10, 12, 15 and 18 in. diameter blower wheels—Lau Blower Co., Dept. AA, 2027 Home Ave., Dayton 7, O. Each

new

DOLLAR VALUE TESTED

HEATING AND COOLING



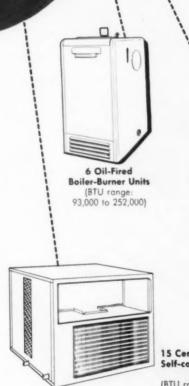
Boiler-Burner Units (BTU range 70,000 to 200,000)

profit guide

Dollar for dollar you can not make a better investment for profit than HEIL DOLLAR-VALUE TESTED heating and cooling equipment. A Heil franchise means more for your invested dollar -more for your customer's dollar with these Dollar-Value Tested features:

- · A 34 year reputation of pioneering - engineering and reliability - not matched in the industry.
- · Full capacity components.
- Sub-sonic noise level.
- · National record of service-free performance.
- · Precise BTU ratings.
- · Units delivered assembled and pre-wired.
- · Lowest stack temperatures in the industry.
- 85% of every advertising dollar spent on units you buy is spent in your market.
- · All local advertising bears your name.
- National advertising program with local impact.
- · A tested sales-producing cooperative advertising program.

Sell the line that passes the Dollar-Value Test - sell Heil. Write Heil-Quaker Corporation today for full details on the more-for-your-money Heil franchise.





13 Oil-Fired Winter Air Conditioners (BTU range: 84,000 to 224,000)

15 Central Air Conditioners Self-contained, remote and water cooled (BTU range: 20,000 to 60,000)

HEIL-QUAKER CORPORATION

712 Eighth Ave. South . Nashville, Tennessee

"Sure! This Walker Unit Ends All My Draft Problems"



Draft Inducer-Regulator

anymore since W brought out this priced draft ind Walker priced aratt inducer-regulator combination. Now, I install Walker inducers on all my jobs. That puts me way out ahead, because with good draft I know every

Most Efficient Draft Control System Ever Made"

Say Heating Contractors, Architects, Builders & Home Owners

Here's an economical answer to every draft problem from older heating installations to modern, low-roofed houses. The new Walker Shur-Flo (Pats Pending) is the surest draft system ever devised - and the most economical. Walker's fan operated draft inducer moves ONLY flue gases ... does not suck in outside air. No wonder it runs quieter, costs less, requires less power. Walker does a complete job of inspirating draft and controlling excess draft. Models available for oil, gas, and coal fired installations.

Perfect for modern homes whose lower chimney heights present a draft problem, the new Walker Shur-Flo is popular with heating contractors and builders because it installs quickly at any angle - vertically, horizontally or at a pitch. Economical in cost. it is highly profitable since it virtually eliminates costly call-backs and corrections. The carefully balanced propeller type fan and small but sturdy motor assure quiet trouble free operation, free from vibration.

For full details see your supplier or write direct. Other Famous Walker Draft Controls serving 25,000,000 Users.











Chimney Cap MFG. AND SALES

1730 Penn St., St. Joseph, Mo.

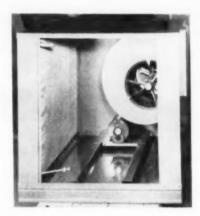
equipment developments

(Continued)

electricity is sole source of heat or where conditions require electric heat, the duct heaters are made to specification if standard sizes do not fit. They are normally supplied for installation in horizontal ducts. Package air conditioner models are designed for reheating of conditioned air, and for prime or supplementary heating applications in heat pumps, etc. Both models consist primarily of high grade resistance coils located and insulated by lava insulators in aluminized steel brackets. Capacities cover virtually any application, the company reports.

Air Cooled Condenser

Low silhouette air cooled condensers in 2 to 71/2 ton models, designed for residential applications - Res-Dent-Air Div., Peden Equipment Co., Dept. AA, 4512



Mt. Vernon, Houston, Tex. Compact unit has built-in channels for compressor mounting if desired. Cabinet is heavy gage bonderized metal. Unit is designed for quiet operation, according to the manufacturer.

Spot Welder

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Blower Assembly

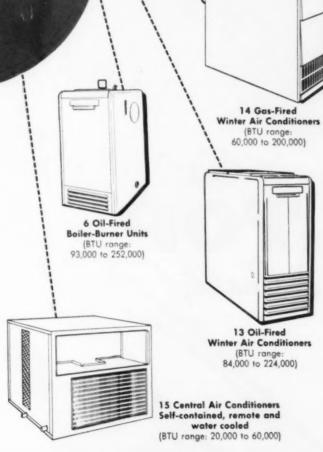
"Series A Preslok" blower assembly with 9, 10, 12, 15 and 18 in. diameter blower wheels Lau Blower Co., Dept. AA, 2027 Home Ave., Dayton 7, O. Each

DOLLAR VALUE TESTED HEATING AND COOLING new profit guide

Dollar for dollar you can not make a better investment for profit than HEIL DOLLAR-VALUE TESTED heating and cooling equipment. A Heil franchise means more for your invested dollar — more for your customer's dollar with these Dollar-Value Tested features:

- A 34 year reputation of pioneering — engineering and reliability — not matched in the industry.
- · Full capacity components.
- · Sub-sonic noise level.
- National record of service-free performance.
- · Precise BTU ratings.
- · Units delivered assembled and pre-wired.
- · Lowest stack temperatures in the industry.
- 85% of every advertising dollar spent on units you buy is spent in your market.
- · All local advertising bears your name.
- National advertising program with local impact.
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Sell the line that passes the Dollar-Value Test — sell Heil. Write Heil-Quaker Corporation today for full details on the more-for-your-money Heil franchise.



HEIL-QUAKER CORPORATION

712 Eighth Ave. South

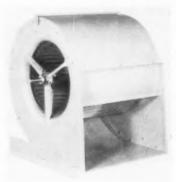
· Nashville, Tennessee

6 Gas-Fired

Boiler-Burner Units (BTU range:

70,000 to 200,000)

blade is attached to center disc by four steel fingers individually pressed within the blade. Extra 3% in. is added to end ring for more rigidity and to bear stress of higher speeds. Wheel is mounted within blower shell using tripod type bearing to provide more side space and less impedance to air flow. Holes on scroll



sides provide multiple mounting positions for various angles of air discharge. Unit is said to operate at over 1000 rpm at 21/2 in. or more static pressure. Air delivery is rated at 3200 to 8000 cfm, the manufacturer reports.

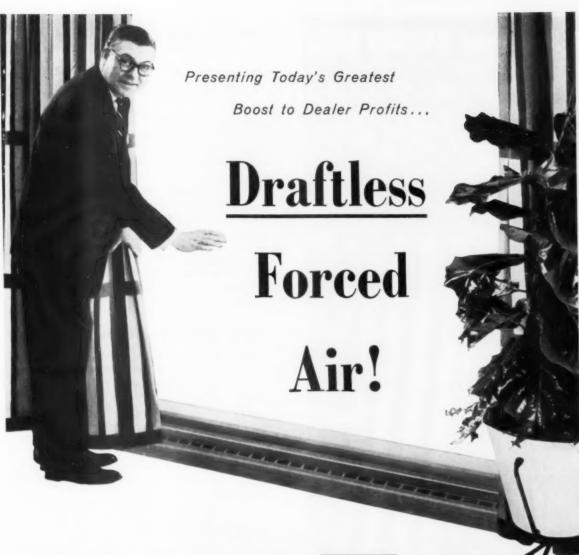
Year 'Round Package

"POLAR-SOLAR PAK" packaged year 'round air conditioning system consisting of complete overhead air distribution system; 100,000 Btu input, gas-fired highboy furnace with belt-driven blower; and self contained, air cooled cooling unit with 2 hp compressor and rated capacity of 23,500 Btuh-Coleman Co., Inc., Dept. AA, St. Francis & Second St., Wichita 1, Kans. Distribution system consists of prefabricated all-metal plenum; trunk and return ducts of pre-scored, selfinsulating glass fiber; fourteen 6 ft lengths of 316 in. (i.d.) "Insul-Pipe" branch ducts; eight blender-type ceiling diffusers with pre-cut insulating blankets and vapor barrier hoods; return air grille assembly with required number of elbows; bonnet and duct connectors, transition fittings, damper sections, adapter plates, collars and sealing tape; and combination thermostat.

Expanded Metal Patterns

"Demcor" expanded metal patterns with openings from 1/16 to 1½ in. and gage range from 0.015 to 12—Designers Metal Corp., Dept. AA, 407 E. 159th St., Harvey, Ill. Light gage meshes are manufactured in coil form so material can be processed through slitter lines and automatic shears. Two or more characters or designs are available within a single pattern.





Important feature of Thermo-Base Radiant Baseboard!

It's the greatest advance in forced air since perimeter heating!

Now you can offer customers all the advantages of forced air *plus* the even heat of hot water baseboard.

A thermostat reading of 72° is no guarantee against drafts. For it's the air movement due to high velocity of ordinary systems that causes drafts. Thermo-Base takes high velocity out of forced air...ends drafts!

The secret is the exclusive Thermo-Base "conversion chamber." Unlike ordinary diffusers, the chamber converts high velocity air coming through the boot into gentle, draftless air.

The chamber pressurizes the unit ... spreads air along its entire length

... then distributes it evenly, draftlessly from end to end.

Result: a thin veil of fresh, healthy air over the entire room . . . even comfort from corner to corner. In short, the best features of both forced air and hot water baseboard.

Write for details! Let us show you how Thermo-Base increases profits.

PROGRESS IN PERIMETER HEATING



SHORT DIFFUSERS: high velocity and un-



CONVENTIONAL BASEBOARD: high



THERMO-BASE: thin air veil along entire wall—ends drafts. Thermobase

RADIANT BASEBOARD

GERWIN INDUSTRIES, INC.

Michigan City, Indiana



new literature . . .

Triangulation in Sheet Metal Layout

"SHEET METAL LAYOUT SIMPLIFIED, Volume III, Triangulation" (240 pages, \$6.50) presents typical examples of sheet metal pattern problems and explains how to solve them by the triangulation method. Designed for use as a shop reference, for home study courses, or as a classroom text book, the manual presents step-by-step procedures to follow in the solution of frequently encountered pattern problems. Throughout the text, separate triangles are drawn to show the development of each line. According to the author, use of Volume III requires an understanding of straight, radial and parallel line methods of pattern development, which are covered in previous volumes of the "Sheet Metal Layout Simplified" series-Hugh B. Reid, Dept. AA, 14189 Marion Ave., Detroit 39.

Linear Air Diffusing Grilles

ALUMINUM LINEAR TYPE air diffusing grilles for sidewalls, window sills and floors are described in bulletin LTD-1-58 (16 pages). Two types are available — model C-2500 with louvers fixed at 0 deg deflection and model C-2615 with louvers fixed at 15 deg deflection. Included is data on vertical and horizontal projection, ceiling effect, and relationship of active to inactive grille sections. Grilles are furnished in 1½, 2, 2½, 3, 3½ and 4 in. widths, in lengths up to 8 ft — Titus Mig. Corp., Dept. AA, Box 810, Highway 20, W., Waterloo, Ia.

Punches and Shears

LITERATURE includes three folders covering hand lever punching tools, shears, punches and dies. All items are illustrated—W. A. Whitney Mfg. Co., Dept. AA, 636 Race St., Rockford, Ill.

Cooling Towers

PROPELLER FAN COOLING TOWERS including belt drive, direct drive and take-apart models are described in bulletin EC-500. Selection data, dimensional information and diagrams are included—Halstead & Mitchell, Dept. AA, Bessemer Bldg., Pittsburgh 22.

General Purpose Controls

GENERAL PURPOSE CONTROL CATALOG (GEC-1260C, 88 pages) contains selection charts covering starters through 200 hp as well as product descriptions of motor starters, contactors, relays, solenoids, limit switches and push buttons. Also included are prices, wiring diagrams, dimensions and application information—General Electric Co., Dept. AA, Schenectady 5.

BEST LINE!

FOR OVER 50 YEARS

The broad, expanding Majestic line offers you every advantage for

selling heating and cooling equipment - in any fuel - any market.

With Majestic, you sell a name that has been noted for quality since 1907. Many Majestic furnaces, 20, 30 and 40 years old, are still giving good service - and Majestic's list of satisfied, return customers is a long one. Majestic provides you with a complete line and

In addition to these dealer benefits, you get experienced, individ-

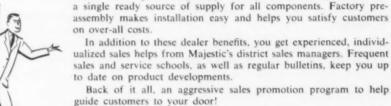
Back of it all, an aggressive sales promotion program to help

Write now for full details on how to become a profit-making

Your customers' best buy is YOUR BEST LINE! Each month 89 million metering prospects see these colorful roadside reminders. Just one of Majestic's valuable prometion programs for its

many dealers.

- **Compact Sizes** Modern Designs,
- All Fuels: Gas. Oil and Electric
- **Matching Summer** Air Conditioners
- Silent Gas Valves - Quiet Burners
- **Blowers Engineered** for Noiseless Operation
- For All Homes and All Forced Air Systems
- **Factory Assembled** - Easy to Install
- Sell for Any Need - Any Market
- "Quiet-Cote" Undercoating



WINTER



Majestic dealer.



Majestic SUMMER AIR CONDITIONERS



Majestic REMOTE AIR-COOLED AIR CONDITIONERS



Majestic WATER-COOLED AIR CONDITIONERS



Majestic ELECTRIC **FURNACE** for the addition of remote air conditioning or

eat pump.

FIREPLACE

THULMAN

ALL-METAL

All-Metal THULMAN CHIMNEY

Majestic

Majestic

Co., Inc.

Majestic

394 Erle Street, Huntington, Indiana

Heating and Cooling Controls

CONDENSED CATALOG of heating and air conditioning controls lists various new controls including Series 872X line voltage heating and cooling thermostats and a triple function hot water control. Ask for catalog 1508-AE—Penn Controls, Inc., Dept. AA, Goshen, Ind.

Registers and Diffusers

CATALOG 58 (eight pages) contains information on floor and baseboard diffusers for perimeter installations, "Air-Master" register-diffusers for heating-cooling applications, wall and baseboard registers for air conditioning systems, and registers and return air faces for gravity installations. Also illustrated and described are steel laundry chute doors and the company's "Soffit" ventilator—The A & A Register Co., Dept. AA, 8327 Clinton Rd., Cleveland 9.

Oil Burners

OIL BURNERS for residential and small commercial applications are described in a four page illustrated circular. Features include standardized parts for easy

servicing and "no-drip" nozzle adapter—Wayne Home Equipment Co., Inc., Dept. AA, 801 Glasgow Ave., Fort Wayne 4, Ind.

Aluminum Sheet and Plate

ALUMINUM SHEET AND PLATE PRODUCT information book (320 pages) has a two-fold objective: 1) to describe aluminum and its alloys as a metal, how it is made, its availability, and the metal's physical and chemical attributes; and 2) to present facts which will be helpful in the proper selection and use of aluminum sheet and plate alloys for various methods of aluminum fabrication and finishing. Chapters are included on "Handling and Storing Aluminum," "Fabricating," "Joining and Fastening Aluminum" and "Surface Finishes for Aluminum." The book is available without cost if requested on company letterhead; otherwise a charge of \$5 is made—Kaiser Aluminum & Chemical Sales, Inc., Dept. AA, 919 N. Michigan Ave., Chicago 11.

Air Pollution Control

"A RATIONAL APPROACH to Air Pollution Legislation" discusses the air pollution problem and lists the points that should be incorporated in a law providing for air pollution controls. It is pointed out that each local air pollution problem usually is unique and, for that

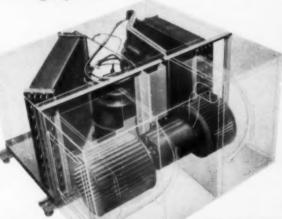


<u>Hundreds of Dollars</u> Easier to Sell! <u>Hours and Hours</u> Faster to Install!



- No refrigerant piping
 - · No water lines
 - · Built-in low voltage panel
- Fits through
 24 inch openings
- Pressurized air system permits installation anywhere

X-ray view of 3 HP Adaptomatic shows built-in centrifugal blowers. Entire unit shipped completely assembled. When necessary, for small openings, complete blower section detaches by removing only 8 screws.





Can connect to warm-air system utilizing same ducts for heating and cooling to slash costs.



In ottic or garage roof - Can be installed in any interior location to save duct work.



For stores, offices and other open areas, discharge return plenum eliminates need for cold air ducts.

3 HP MODEL 830AB3

Only the Fedders Adaptomatic is engineered and priced to make it easy for your average-income customers to buy . . . easy for you to sell. Proved in thousands of installations.

Fast, Easy Installation—An Adaptomatic exclusive that pleases customers . . . makes you money. No expensive structural changes needed . . . no water pipes or cooling towers . . . no on-site charging of hermetic lines. Split chassis design gets unit through openings small as 24 inches square. Ducts to outside fit between studs without cutting.

Plus:

Fedders exclusive system of Pressurized Condenser Air – permits installation of Adaptomatic anywhere in existing homes . . . with maximum efficiency and minimum ductwork.

Happy Result: You sell Fedders Adaptomatics easier and faster because final cost is hundred of dollars less . . . brings central air conditioning within reach of additional thousands of families. Available in 2 HP and 3 HP models.

FOR EXTRA BUSINESS!

2 New Adaptomatic Models!

New 3 HP Water-Cooled Adaptomatic . . . for large areas isolated from outdoor air source. New Discharge-Return Plenum eliminates need for any ducts. Ideal for fine stores where ductwork would impair decor, for large offices unserviceable by window units.

New 3 HP Heat Pump Adaptomatic – provides winter heating, summer cooling at a price only slightly above straight cooling models . . . hundreds of dollars less than other heat pump central air conditioners. Optional duct heater available.

INTRODUCING!

Fedders Remote Air Conditioning Systems

Now Fedders offers a complete line of remote central air conditioners—up to 5 HP—to solve every possible air conditioning problem. New remote units incorporate Fedders exclusives... arrive factory-tested and pre-charged... to eliminate toughest, meanest part of installation.

... your FEDDERS distributor.

(Continued)

reason, should be controlled by residents of individual communities. In recommending that legislation be initiated by local government, the booklet suggests that the state be assigned the function of technical adviser and be responsible in jurisdictional matters. Sections on rule making and enforcement are included —Manufacturing Chemists' Association, Inc., 1625 Eye St., N. W., Washington 6, D. C.

Schoolroom Heating and Ventilating

MANUAL discusses performance and design characteristics of a gas-fired warm air perimeter type schoolroom heating and ventilating system. According to the company, the system can be tailored to fit the needs and layout of any schoolroom. The furnace used is available in two models with inputs of 85,000 and 100,000 Btuh depending on the size of the classroom. The heating and ventilating of non-classroom areas of schools is also discussed—Norman Products Co., Dept. AA, 1150 Chesapeake Ave., Columbus 12, O.

Sheet Metal Machinery

CATALOG 58-1 contains information on sheet metal machines and tools. Included is data on band saws.

beading machines, brakes, drills, electric hammers, foot presses, nibblers, notchers, punches, shears, etc.

—Balko Tool & Machine Co., Dept. AA, 6666 N.

Western Ave., Chicago 45.

Corrosion Resistant Exhaust Systems

"THERMOPLASTIC Corrosion-Proof Ventilating and Exhaust Systems" explains how to design a corrosion resistant duct system and describes all necessary components of such a system. Advantages of using polyethylene, according to the company, are that polyethylene is light in weight, is highly flexible, and possesses a high impact strength, resisting dents and cracks in service. Other advantages claimed include low cost, long service life and easy maintenance—American Agile Corp., Dept. AA, P. O. Box 168, Bedford, O.

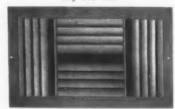
Gas-Fired Heating Equipment

Two PAGE CIRCULAR covering gas-fired horizontal furnaces features a cutaway view illustrating sales features. Also available is literature presenting specifications for vertical and counterflow gas-fired units. Other data sheets give specifications for evaporator coils for air cooled remote residential air conditioning applications—Chattanooga Royal Co., Dept. AA, First and Delmar Sts., Chattanooga 6, Tenn.

NEW FROM A-J!



A-J 200 AIF



A-J 200 CF



A-J 200 BF

No. 200 SERIES CEILING DIFFUSERS

with 18 different deflection patterns!

Have a special air distribution problem? Solve it quickly, easily, economically with an A-J No. 200 Series Ceiling Diffuser.

Extruded aluminum curved blades provide maximum air control with minimum resistance. Face bars are $1^1/4''$ wide on 3/4'' centers. You can have your choice of multiple valves or opposed blade dampers. Available in either sturdy steel or extruded aluminum frames. Chrome aluminum enamel is standard finish.

Do you have an A-J catalog? There's a new one coming off the press soon. Drop us a line and we'll reserve you's copy.

Select Territories Available



A-J Manufacturing Co.

Dept. A-4 3601 East 18th Street Kansas City, Missouri



Crimp, Bead and Lock-Seam (USS) Galvanized Steel Sheets —the zinc stays on

Pittsburgh Sheet Metal Duct Company uses USS Galvanized Steel Sheets for their complete line of ductwork. That's because they want nothing but the best.

Pittsburgh Sheet Metal Duct Company buys USS Galvanized Steel Sheets in coils. Then they shear to length, bend, crimp and punch, roll, bead and lock-seam the galvanized steel. And no zinc flakes off the base metal.

You can get the same superior results in your ductwork when you use USS Galvanized Steel Sheets.

USS is a registered trademark

United States Steel Corporation – Pittsburgh Columbia-Geneva Steel – San Francisco Tennessee Coal & Iron – Fairfield, Alabama American Steel & Wire – Cleveland United States Steel Supply – Warehouse Distributors United States Steel Export Company



The word gets around.....



NATIONAL Angle Rings

Way No. 1

National rings are <u>guaranteed</u> to be <u>round</u>. This means that each and every one is <u>right</u>...a quality that works with you to save lost motion and costly fitting time in the shop or on the job site.

Way No. 2

National leg-out rings are available in-stock for immediate delivery. This on-the-floor warehouse service saves you days of waiting time, makes it unnecessary for you to invest your money in an inventory of your own. Draw on National stocks as you require.

Way No. 3

National gives you stock prices instead of custom prices. Because National rolls rings for stock, in production quantities, you get the benefit of this lower cost. You are invited to investigate. Write for the National stock bulletin and price list.

Rings Rolled To Order

National rolls accurate rings to nearly any size, in all ductile metals. Phone, wire or write for a quotation on your requirements.



2138 South Sawyer Avenue, Chicago 23, III., Bishop 7-4255

we hear that . . .

- NONALD N. CAMPBELL, formerly president of the Bryant Mfg. Co., has been elected a vice president of the Westinghouse Electric Corp. and president of its wholly-owned subsidiary, the C. A. Olsen Mfg. Co., Elvria, O. In his new capacity, Mr. Campbell will have overall responsibility for the firm's heating and air conditioning operations, including the Westinghouse air conditioning division which is under the direct management of Bruce D. Henderson, another Westinghouse vice president. In announcing the appointment, Mark W. Cresap, Jr., Westinghouse president, pointed out that "the relationship between air conditioning and heating has become increasingly important, and it has become necessary to achieve better integration of the company's cooling and heating product lines." The air conditioning division manufacturing facilities are located at Staunton, Va., and the Olsen plants are at Elyria and Medina, O. (Henry Furnace Co.)
- More than 250 couples dealer-contractors, distributors and their wives recently enjoyed a 10-day Caribbean trip at the expense of Carrier Corp.'s Unitary Equipment Div. The trip was awarded as a prize in a sales incentive program.
- To GUARD AGAINST THE POSSIBILITY of metal staining and rusting, Rolled Steel Corp. has installed two forced air space heaters in its Skokie warehouse, each with a thermal capacity of 2,000,000 Btuh. The two furnaces create an air flow up, around and down throughout the 50 steel storage bays in the plant. Some 700,000 cu ft of air is circulated each minute. All moisture which might potentially be injurious to the steel stored in the plant is removed by this dehumidifying action, according to the company. The units operate the year around, circulating unheated air in the summer months.
- DOWAGIAC STEEL FURNACE Co. now offers a lifetime warranty with gas- and oil-fired heating units.
 Parts covered are the heat exchanger and cabinet.
- ▶ THE QUINCY STOVE MFG. Co. has changed its name to Monogram Industries, Inc.
- ▶ AMERICAN AIR FILTER Co., INc. has resumed production at Plant 2, which is now located at 2515 S. Fourth St., Louisville, Ky. The old Plant 2 was recently destroyed by fire.
- Marketing plans for residential heating equipment and water heaters were reviewed by W. Glenn Oslin, vice president and general sales manager of John Wood Co.'s Heater and Tank Div., at the division's recent annual sales meeting. Mr. Oslin pointed

out that sales, advertising and promotion programs being conducted are designed to be put into effect on the local level "with a minimum of effort and expense to our customers." The marketing campaign will be backed by a full program of national advertising, with insertions in national trade magazines, consumer publications, and state association publications, according to Mr. Oslin. On the local level, distributors and dealers are offered an expanded mat service for newspaper advertising, as well as radio spots, television films, and billboard posters.

- Sales representatives of the Tuck-Aire Furnace Co. recently completed a four day air conditioning school at the company's factory in San Francisco. Features of 1958 summer air conditioning units were explained by James Blyth, manager of the Air Conditioning Div. Also introduced to the representatives were new models of gas-fired warm air furnaces.
- A HAWAHAN HOLIDAY FOR TWO was the grand prize in a recent contest for dealer-contractors of Utility Appliance Corp. The contest was based around estimating the total advertising impressions made on the Los Angeles TV audience by the animated car-

toon salesmen, Mr. Gaffers and Mr. Sattler, during the period Feb. 1 to Mar. 31. A TV advertising impression, according to P. L. Chabre, national sales promotion manager, is a single commercial impression. If three people are watching TV and each sees a single commercial, this constitutes three impressions.

- THE JANITROL HEATING & Air Conditioning Div., Surface Combustion Corp., has opened a new sales office in Cedar Rapids, Ia. The new office, operating as part of the Omaha district, will be under the direction of T. W. McAfee.
- FONTANESI & KANN Co., 16929 Wyoming St., Detroit, has been named to handle dual-duct air mixing equipment for air conditioning systems in the Michigan area for Buensod-Stacev. Inc.
- Two hundred dealer-contractors, sales representatives and utility executives attended the recent heat pump conference held at St. Petersburg Beach, Fla. by the Typhoon Heat Pump Co., Tampa Div., Hupp Corp. The firm's 1958 line includes four types air-to-air, water-to-air, water-to-water and air-to-water.
- BURNHAM CORP., Irvington, N. Y. has acquired all stock of the Berger Furnace Corp. of Belle Vernon, Pa. The Berger firm will now operate as a division of Burnham Corp.





GOOD NEWS TO BIG BAG OPERATORS!

Replace your troublesome bag with the Kleen Air Disposal Box which holds one ton of soot. ONE MAN does more jobs with Kleen Air, than two with the big bag.



TRAILER MOUNTED POWER VACUUM CLEANER

One ton soot capacity. May be used as trailer, or mounted on any 3/4 ton truck Versatile, compact. To find out more about Kleen Air products, send the attached coupon - today!

FINANCING AVAILABLE INVESTIGATE NOW-RETURN COUPON TODAY-

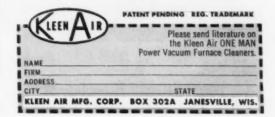
POWER VACUUM FURNACE CLEANER Cash in NOW on this new method in furnace and boiler cleaning. ONE MAN can clean 40 homes before

> small for profits with this natural CUSTOMER BUILDER. No job is too large - ONE MAN cleans the largest boiler, breeching and stacks. Industrial cleaning now is profitable.

> emptying the big Kleen Air dust box. No job is too

Kleen Air cleans in RAIN or shine, all year around. Designed to work in crowded, congested areas, Kleen Air equipment requires only one parking area. End hose deterioration; the Kleen Air hose rack is completely enclosed - 200 foot capacity.

KLEEN AIR MANUFACTURING CORP. JANESVILLE, WIS.





TEMCO

America's gas heating specialists!

Central Gas Heating for all homes, all locations!

You stay a jump ahead of competition when you let it be known that you represent famous Temco central heating. Building contractors and home buyers alike respect the Temco name. They honor it for premium construction . . . value it for excellent performance . . . demand it for versatility of line that adapts easily, perfectly, to every location, budget and building requirement!

- * Temco Lo-Boy Series
- * Temco Counter-Flow Series
- * Temco Hi-Boy Series
- * Temco Horizontal Forced-Air Furnace
- * Temco Perim-Air-Pac



Ceramiclad* heat exchangers—your biggest sales exclusive! Only Temco heat exchangers are finished in Ceramiclad, the exclusive porcelain enamel finish similar to that used for jet aircraft combustion chambers. Ceramiclad withstands far greater temperatures than any furnace will ever reach—and is impervious to condensation.

There's a Temco air conditioning unit to use in combination with every Temco furnace!

*Trade Mark Registration Pending

Write now for complete information:



"THE COMPLETE LINE OF GAS HEATING EQUIPMENT"

ROOM HEATERS • FLOOR FURNACES • WALL HEATERS • UNIT HEATERS
WARM AIR FURNACES • AIR CONDITIONING • GAS WATER HEATERS

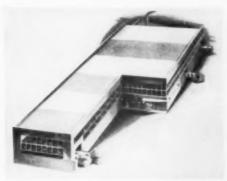


has been elected president of Bryant Mfg. Co., a division of Carrier Corp. Mr. Shawhan succeeds Ronald N. Campbell, who recently resigned. Associated with Carrier since 1929, Mr. Shawhan has been associated associated with Carrier since 1929, Mr.

SAMUEL F. SHAWHAN

Samuel F. Shawhan Shawhan has been assistant to the president since 1955. He is a member of the American Society of Heating and Air-Conditioning Engineers and the American Society of Refrigerating Engineers.

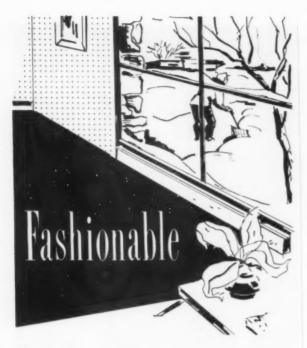
- ▶ FIVE FIRMS have recently been appointed by The Trane Co. to handle the sale and installation of packaged air conditioning equipment in their respective areas. They are: Apex Air Conditioning Corp., New York City; Midway Heating and Air Conditioning Co., Inc., Marietta, Ga.; Parker Heating and Air Conditioning Co., Atlanta, Ga.; Hall Sheet Metal Co., Claremore, Okla.; and Scranton Electric Construction Co., Inc., Scranton, Pa.
- ▶ Famco, Inc. has enlarged its facilities for the production of glass fibers for the plastics industry. A major portion of the expansion was in the spinning room where installation of additional furnaces and machines more than tripled former capacity.
- ▶ WALTER J. VILLARREAL, formerly a district manager for William Wallace Co., has formed the W. J. Villarreal Co. The new firm, with headquarters at 2525 El Camino Real, Redwood City, Calif., will operate as a manufacturers' representative handling gas heating and gas venting equipment in California, Nevada and Hawaii.
- ▶ FOR THE SECOND CONSECUTIVE YEAR The Trane Co. is offering eight two-year pre-engineering scholarships to high school senior boys in the La Crosse, Wis, area. Purpose of the program is to encourage young men to elect engineering technician careers, with subsequent employment at Trane.
- ▶ THE LONERGAN COOLERATOR DIV., McGraw-Edison Co. is guaranteeing prices on "Coolerator" and "Manning Bowman" room air conditioners against reduction until June 1.
- ▶ THERM-O-DISC, INC. has moved into its new plant on Route 13, south of Mansfield, O. The 85,500 sq ft plant houses development and testing laboratories, engineering department, production, manufacturing and sales facilities.



MODERNIZATION of Great Western Steel Co.'s Milwaukee warehouse will facilitate shipments to Wisconsin and neighboring states

- ▶ Great Western Steel. Co. of Chicago is expanding and modernizing its Milwaukee warehouse. The expansion includes a 12,000 sq ft addition to the present warehouse, which will bring the total floor space up to 42,000 sq ft.
- THOMAS W. McNetll has been appointed director of procurement of American Radiator & Standard Sanitary Corp. He has been with American-Standard since 1923. Prior to his present appointment he was in charge of the Air Conditioning Div.
- ALL OFFICERS OF THE LAU BLOWER CO. were reelected at the recent annual meeting of the firm's board of directors. H. W. Faulkender is chairman of the board; T. I. Byrd, president; S. F. Hipple, H. E. Nemecek and W. E. Prather, vice presidents; R. L. Perkins, secretary; and C. E. Hubbard, treasurer.
- ▶ HAROLD BELL & ASSOCIATES, a New York market research firm, is conducting a survey for Thatcher Furnace Co. to uncover consumer attitudes toward home heating systems. Results of the study and sales suggestions based on it will be turned over to company dealers.
- NEW PRESIDENT of the Mathes Co. is John J. Hildebidle, formerly the firm's executive vice president and general manager.
- Otto Schellenberger, Detroit district sales manager for Thor Power Tool Co., was named "Manager of the Year" in the firm's 1957 international sales program.
- ▶ THE BLACK & DECKER MFG. Co. has opened a new sales and service branch in Tampa, Fla. The new branch, located at 3407 S. Dale Mabry Highway, will provide repair and service facilities for customers in the Tampa-western Florida area.





Profitable...

For homes where appearance is important; where heating and cooling results must be satisfactory; where unit price and installation cost must be in line ... you have everything in your favor when you sell

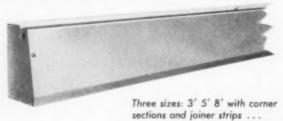
FAN-AIR

BASEBOARD DIFFUSERS

Styled to blend inconspicuously with the decor of every room . . .

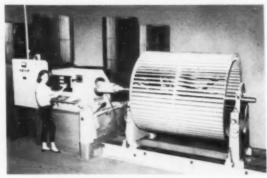
Sturdily built of 20 gauge steel . . .

With built-in balancing dampers and instantly adjustable boot openings . . .



Ask YOUR JOBBER or write to

DOWAGIAC MICHIGAN



ELECTRO-DYNAMIC MACHINE tests balance of fans and rotor blowers for air conditioning and ventilating equipment

- ▶ UTILITY FAN CORP. recently installed a six ton electro-dynamic balancing machine to test weight distribution in fans and blowers. "It's a step toward nearly perfect fan performance," according to Vance Smith, plant manager, "Extraneous noise is still one of the biggest problems in air conditioning and ventilation today. The balancing machine will help eliminate such noise in blowers used in heating and air conditioning equipment."
- PCARRIER CORP, has developed a "planned service" program for dealers and distributors. Divided into two parts, the program provides for: 1) Planned Overall Maintenance Service, which includes periodic inspection, emergency service, parts, labor, supplies, startup and shutdown; or 2) Planned Inspection and Labor Service, which includes all features of the Overall Maintenance service except for parts and supplies. According to William F. Tyson, manager of technical services, the new service contract system is designed to provide increased working capital for dealers and distributors, steady year 'round business, job security for mechanics, new sales leads, adequate inventory of parts and supplies and a more stable income.
- ▶ J. Wiss & Sons Co., Newark, N. J., recently honored its 25 Year Club employees with a dinner held at the Military Park Hotel, One hundred fifteen employees with from 25 to 65 years of service were in attendance. The combined service years of the group totals 4074 years, an average of better than 35 years each.
- ALL OF THE HOUSES in a new Kansas City, Mo. development are being furnished with "Heatwave" furnaces that are adaptable to the addition of air cooled air conditioning. Ben F. Scot, Inc. is the dealer-contractor handling the installation of the equipment, which is produced by Southwest Mfg. Co., Aurora, Mo.





Now, it actually costs you less to get a better engineered E-Z-ON damper regulator.

Here's Proof: • Lower Price... Means Lower Cost to You
• Double Prongs Mean Double-Grip... No chance of swiveling
• Washer is Permanently Attached... No loose washer to drop
or fall in pipe • Modern "Swept" Wing Nut is Eye-appealing
... Adds new beauty to installations • Balanced Construction...
Prevents possible binding of damper in duct.

M. A. GERETT CORP.

all leading jobbers stock EZON Stocked in Conada by TMEKMIDAIRE CORP 7 9 Cumberlanil St. Joseph



YEATS dealer or write direct.

Appliance dolly sales co.

2125 N. 12th Street, Milwaukee S, Wis.



Less than 5 seconds on short and lighter pieces . . . Slightly longer on bulkier pieces

MAKES PERFECT DRIVE-CLEATS TOO!

ed for ON-A-DIME pivoting in close

quarters. And look at all these other labor saving features at the

right. Start saving time and unnec-

essary work today—call your local

The ONLY tool that does both.

A complete drive cleating tool . . .
no set-up time . . . no adjustments.
Handy to take out to the job when
not needed in the shop. Turns idle
time into production time. Flanges
any square duct up to 20 gauge.
Quickly pays for itself in time,
material and labor savings.
No. 12 smiths Clear Bander.

material and labor savings.

No. 12 5mith's Clear Bender
12" Wide — \$ 49.80*

No. 18 5mith's Clear Bender
18" Wide — 78.60°

No. 24 5mith's Clear Bender
24" Wide — 140.00°

No. 30 5mith's Clear Bender
30" Wide — 170.00°

Also Clear Bending Brakes

of the state of th



Covers

PERFECT
DRIVE CLEATS
fit the duct without
the use of a screwdriver.
TREMENDOUS SAVINGS
in erection time and labor.

R. E. SMITH

1124 Elizabeth Avenue . Waukegan, Illinois

wholesaler doings...



A. R. Rees

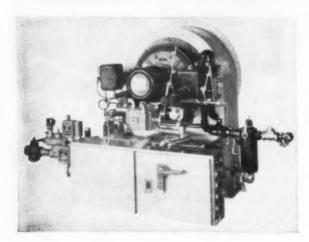
A. R. REES has been appointed general manager of Waterbury Heating Supply Co. with headquarters at Minneapolis. With the company for many years, Mr. Rees has served as a district manager, sales manager, and most recently as

manager of the company's Madison, Wis. branch. Replacing him as Madison branch manager is Everett L. Borst.

- MIDWEST MOTOR PARTS, INC. will handle distribution of Gibson air conditioners in the Wichita, Kansas area. Principals are Sil Dennet, president, and Tom Loyd, sales manager.
- ▶ Graybar Electric Co., Inc. will handle distribution of Mitchell room air conditioners and dehumidifiers in Washington, D. C. and the Washington, D. C. trading area.
- ▶ GIRARD STEEL SUPPLY Co. has opened a new branch at Duluth, Minn. at 2915 W. Superior St.

- New Address of Air Conditioning Wholesalers, Inc. is 2276-A Washington St., Newton Lower Falls, Mass.
- HENRY V. DICK AND Co., Charlotte, N. C. has been appointed Copeland wholesaler for a territory including Charlotte, Asheville, Wilmington and Winston-Salem, N. C.
- ▶ Midwest Heater Co., Omaha, Nebr. distributor, will cover the Midwest territory for Waste King Incinerator Corp.
- ▶ IGOE BROTHERS, INC., 35 Halsey St., Newark, N. J., will handle distribution of "Rex" water heaters for The Cleveland Heater Co. Territory to be served includes the northern half of New Jersey and the counties of Rockland and Orange in New York. William T. Hunt is vice president and general manager.
- ▶ TRI-STATE HEATING SUPPLY will distribute "Mercury" residential air conditioning equipment in the Fort Wayne trading area for Lord and Palmer, Inc.
- AIR ACCESSORIES, 1400 Henderson St., Fort Worth, Texas has been named a distributor of "Western" furnaces and air conditioners in 40 counties west of Fort Worth. Robert Murphy will direct sales activities.

JOHNSON FORCED DRAFT PACKAGE-UNIT BURNERS



Completely Factory Assembled & Mounted

For firing with Oil only ... Gas only ... or combination Oil and Gas. Completely assembled and rigidly mounted at the factory ready for easy, inexpensive attachment to any boiler or heat receiver. They provide smoother, more efficient combustion regardless of stack conditions and firebox pressure variations.

Powered by the world famous Johnson Model 53 Burners, these "packaged" units are available for any heating need, in sizes from 25HP to 500HP. If you want the last word in heating efficiency and economy, investigate these new Johnson Forced Draft Package Unit Burners.

Builders of fine Oil Burner Equipment since 1903

.:Johnson Oil Burners...

S. T. JOHNSON CO.

940 Arlington Ave., Oakland 8, Calif. Church Road, Bridgeport, Pennsylvania



*OVERNIGHT SHIPMENTS TO YOUR WHOLESALER

Moncrief, being strategically located in Atlanta at the Cross-Roads of the South, is in a position to make PROMPT DELIVERIES on everything you need in Pipe and Fittings for any type of heating or cooling system. Save Time and Money on Ducts, Registers, Grilles and Diffusers by ordering from your jobber Today.

Write for Free Catalogue.



MONCRIEF FURNACE COMPANY

676 Hemphill Ave., N. W., ATLANTA 1, GA



for practically everv

use ...

PANEL FILTERS

Permanent. High Velocity 1", 2" and 4"

HP AFTER-FILTER

High efficiency at low initial & maintenance cost.

F/S FILTER



Low cost. ermanent

ROLL-KLEEN

Automatic dry type filter.

GREASE ELIMINATOR



SELF-WASHER



For kitchen grease hoods. One and two-sided.



automatic filter. maintenance.

D/C FILTER



permanent replaceable media.

MICROLOC



Super efficient

Write for complete information to P. O. Box 45187, Airport Station, Los Angeles 45, California

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LOS ANGELES

Originators of TAR-AXE Certified Filter Service









cret is the rigid button-and-slot lock-joint fastening.

Write for Catalog and Details

BAR-BROOK MFG. CO., INC.

Shreveport, Louisiana

AN OPPORTUNITY FOR JOBBERS . . . WRITE US!

*Trade-Mark



BERGER Bros. Co.

MANUFACTURERS OF

PIPE - GUTTER "K" & HALF ROUND ALSO COMPLETE LINE OF FITTINGS & ACCESSORIES

SOLD THRU LEADING JOBBERS EVERYWHERE

Manufactured by

BERGER BROS. COMPANY

229-237 Arch Street

Philadelphia 6, Pa.



CLEANER

Boston 15, Mass

Here's why the Pullman Never-Clog Vac means extra tales!

Gets you in and out of basement fast No breakdowns, more sales calls . Paves way for repairs, installations, fuel oil sales . Makes happy customers, steady customers.

merchandising ideas



"COMFORT CRUSADE" is the theme for Century Engineering Corp.'s 1958 sales program. Sales staff (left) and company officers F. G. Johnson, sales manager, and B. J. Lattner, executive vice president, examine key display poster

A "COMFORT CRUSADE" has been launched by Century Engineering Corp. The basis for this sales promotional program is American Artisan's Standards for Rating Heating Systems. The program, designed to help dealer-contractors get more modernization work at more profit, not only includes a supply of comfort rating charts for distribution to all prospects, but also contains material explaining how to get a "Comfort Crusade" started at the local level.

The sales promotion kit contains an eight page instruction booklet that outlines a step-by-step approach designed to attract prospects, develop their preference and influence their selection of a heating and cooling dealer-contractor who will provide them with a system designed to provide the maximum in comfort.

Other materials contained in the kit include display banners, posters, pennants, handbills, mailers, publicity releases, newspaper ad mats, radio and television spot announcements and job site signs.

Newspaper ads, in common with all other promotional aids, are primarily designed to sell the local dealer-contractor and his services. The ads point out the reasons for drafts, cold floors, lingering food odors, irritating machinery noises and variations in room temperatures. Then they explain how these faults can be corrected by dealer-contractors who install systems designed to meet the specifications outlined in the comfort rating chart.

Maid-O'-Mist, Inc. offers dealer-contractors a humidifier check chart showing the size and type of humidifier the home owner should choose for his particular application. Various types and sizes of homes are illustrated and the proper humidifier for each is listed below the photograph.



LONG-HANDLED ROUND **FURNACE BRUSHES**

Bristling with famous long-wearing Silver-Bright Rustproof Wire — in 4 sizes, 2 handle lengths: No. 5-4418, 3"; 5-4418, 4"; 5-4410, 4½"; 5-4410, 5"; with either 4 ft. or 5 ft. handles.



CHIMNEY CLEANING BRUSHES - ROUND OR SQUARE

"Round" No. 66 — 6", 7", 8", 9", 10", 12" dla. with Round Black Tempered Brush Wire. "Square" type No. 666 — 6", 7", 8", 10", 12" widths, with Flat Tempered Steel Wire.



TIN HANDLE ACID OR DOPE BRUSHES

Selected grade bristles in tin ferrule. Width, 3/6", 1/2", 3/6".

Write for special prices — and new Schooler Flue and Furnace Brush Catalog.

Schaefer Brush MFG. CO., Inc.

117 W. Wolker Street, Milwaukee 4, Wisconsin Buy Schaefer...It's Safer

SUPREME CONTOUR SPEED BLADES



BLADES LAST EIGHT TIMES LONGER-Yes, these blades actually outlast eight of the regular tempered spring steel blades and also greatly outperform them on all roughing-in and screll cutting jobs.

CUT TWICE AS FAST-Specially filed, sharp teeth with every CUI I WICE AS PAST —Specsary meet, study seem went every tooth afternately set, Malon Coppener Blades cuit befrie flan heica as fast and more smoothly than previous blades. Chips and dust are cleanly removed and extra wide set prevents binding, Sight hoak in teeth make both ripping and crassoutting equally easy and fast.

THRMS SHARP CORNERS_While the touth construction makes it exceptionally easy to saw in a perfectly straight line. the unique blade design, which adds strength where needed and the unique traces design, which alons strength when measure and tapers toward the front end, mables the operation to make very sharp turns. To rough in square openings it is only necessary to to in for one startling hole, withdraw saw at corners until only paint is in weed and then turn sharply. Corners are easily red afterward if necessary.

GREATER SAVINGS-Priced only slightly higher than ordinary blades, the Malco "Supreme" Contour Speed Blades are the most economical blades available for all around roughing-in work and hole and scroll cutting. They properly fit the pooular saws used by the industry, such as Milwaukee Sawzall, R.C.S. Super Saws, etc., and are fully guaranteed to completely satisty.



for tastest sawing possible

Wide kerf prevents binding





See your jobber, or writ





Bond Insulation PERMANENTLY with

ST. CLAIR

Specially Formulated Insulation Adhesives

ST. CLAIR Insulation Adhesives provide excellent coverage, high heat resistance and easier handling of insulation which can be bonded immediately or up to 45 minutes after applying adhesive.

These insulation adhesives afford fine results for bonding insulation to ducts. They supersede pins and clips, wires, screws, and caps, because they save on installation cost while providing a better, neater and more permanent bond.

ST. CLAIR also produces clear and white adhesives for bonding lap seams on pipe insulation—also other adhesives for applying fail and vinyl facings to glass fibre.

> Send for Free Sample & Catalog

ST. CLAIR RUBBER CO. 440 E. JEFFERSON AVE. - DETROIT 26, MICHIGAN



GEM CLAY FORMING INCORPORATED

One of America's Most Complete Clay Forming Plants

Makers of

- RADIANTS
 - BACKWALLS
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 - HEATING ELEMENTS
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GEM is the world's largest producer of ceramic Radiants for the heater field. Call on GEM experience to help you cut costs, boost quality and style appearance with the best refractory shape for your unit. GEM is equipped to give immediate service, faster delivery; free production estimates on your new developments.

GEM CLAY FORMING, Inc.

Box 500 . SEBRING, OHIO . Phone: 8-2101

appointments . . .

DON S. BERGERT as general manager, galvanized sheet sales, for Reeves Steel and Mfg. Co., Div. of Empire-Reeves Steel Corp. Mr. Bergert has been on



Don S. Bergert

the staff of the company's sheet sales department since 1946, and has worked closely with distributors and sheet metal contractors in solving storage and fabricating problems. He plans to continue this activity in his new position.

- JACK JORDAN as assistant to the president of Iron Fireman Mfg. Co.
- WILLIAM F. STEINER as assistant national sales manager for The Payne Co. Mr. Steiner was formerly factory sales engineer in the northern California sales territory.
- FRANCIS M. HALLORAN as manager of the Boston district office for Penn Controls, Inc. James Garrett, formerly Boston district manager, has been transferred to New York where he will assist George Sander, New York district manager.

TOM DELANEY, formerly general manager of the Waterbury Heating Supply Co., as vice president, sales, of the Waterman-Waterbury Co. James Weber. former district manager of Waterbury Heating Supply Co. of Madison, has been appointed advertising and promotion manager for the Waterman-Waterbury Co.



Tom Delaney



Irwin B. Nelson

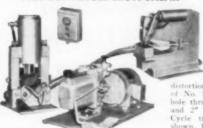
- IRWIN B. NELSON as vice president, national sales, of Embassy Steel Products, Inc. Formerly New York sales manager, he was also elected to the firm's board.
- ROBERT T. STAFFORD as general manager of the Seattle steel service plant of Joseph T. Ryerson & Son, Inc. He succeeds W. Raymond Lockwood, who has been appointed manager of the machinery division with headquarters in Chicago. Mr. Stafford joined the company at Chicago in 1940, becoming a sales representative in 1946. He has also served as manager of



No. 4-B TINNERS PUNCH

Capacity 1/4" hole thru 16 gage iron. Length 81/2". Weight 3 lbs. Depth of throat 2". Punches and dies 1/16" to 9/32" by 1/64". Also supplied with three punches and dies in cardboard

NO. 95-B HYDRAULIC PUNCH & NO. 607 ANGLE IRON SHEAR



Can be used in com bination as shown or either tool may be purchased separately and rigged to use in com-bination. Capacity of shear; 4" x 4" x 14", angle iron; 18" x 314", flat steel; 16" square flat steel; 16" square or 58" round mild steel bars, rer removes leaving no

distortion to ends of bar. Capacity of No. 95B Hydraulic Press; 36" hole thru 14", 16" hole thru 3/16" and 2" hole thru 3FP motor as

NEY MFG. CO. 636 RACE ST., ROCKFORD, ILLINOIS



. . . fits any straight or sloping bonnet furnace.

• Stronger mounted front-end thermostat • New positive control • Completely adjustable drip valve Non-breakable evaporator plates . Stainless steel pan

AUTOMATIC HUMIDIFIER CO. • Cedar Falls, Iowa

GUTTER GUARD ADAPTABLE TO ALL TYPE GUTTERS

KEEPS OUT Leaves, branches, birds nests, balls, (After rain leaves dry up and blow away.)

PREVENTS Clogged gutters, downspouts, sewers.

ALUMINUM MOULDING Adapts to all types of gutters.

EXTRA PROFIT Easily installed as a separate job or on any gutter work.

NATIONALLY ADVERTISED



Order from your favorite jobber or write us for full details.

LOCKHART MFG. CORP.



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RING and CIRCLE SHEARS

MASON-WORCESTER

BRUSH CO.

38 AUSTIN ST. WORCESTER 1, MASS

For cutting inside and outside circles in all sheet metals, cardboard, fibreboard, asbestos, insulating or similar materials. These PEXTO

machines, hand or power driven, will cut up to 60-inch diameter without the need for expensive dies. Write for details.



Complete line of machines and tools for Sheet Metal work.

THE PECK STOW & WILCOX SOMPANY SINCE 1765, SOUTHINGTON CONNECTICUT USA

Sodering Aluminum is easy

WRITE TODAY FOR FREE SAMPLES Permanent aluminum sodering is made simple and easy with AL-LEN Alumi-Soder. Complete in itself, flux and soder are combined in exactly the right proportion in a convenient "handy-to-use"

stick.



L. B. ALLEN CO. INC. 9302 Berenice Schiller Park, III.

-Metropolitan Chicago-

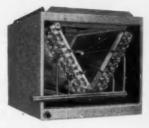
Expecting A Check?

You'll get it quicker if you gave your postal delivery zone number with your address.

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include your zone number in your return address — after the city, before the state.

Quick
Delivery
to South &
West
ADD-ON
COILS

Stock Sizes 2, 3, 5, & 7.5 Ton



Magic Aire Division UNITED ELECTRIC CO.

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Wichita Falls, Texas

WARM AIR CONTRACTORS

The Pullman I. D. Tag means more sales . . reminds customers to contact you!

Puliman Furnace & Boiler Vacs Are First in Sales Because They Never Clog

PULLMAN VACUUM CLEANER CORP. 25 Buick St.,

Boston 15, Mass

HERE'S WHY

• gets you back on

• gets you back on the ground-floor ... for repair business, oil sales, new installations • keeps you in touch with good prospects • builds confidence in you and your service

supply of 10 I.D. tags free with every Pullman Never-Clog Vac.

Pullman



STAMPINGS & SPINNINGS

Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

If you don't have catalog K, send for it NOW.

MILLER & DOING

89 ADAMS STREET

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BROOKLYN, N. Y.

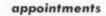
PERFORATED METALS for all industrial uses

ARCHITECTURAL GRILLES
Illustrated Catalogs give complete information

Diamond Manufacturing Co.

Box 34, Wyoming, Pa. Wilkes-Barre Area

Sales Agents in all principal cities Consult your Classified Telephone Directory



(Continued)

the inside sales department and as manager of sheet and strip sales. Mr. Lockwood, who joined the firm in 1926, was appointed manager of the Seattle plant in

F. J. HOLLERBACH as manager of central heating and air conditioning sales for Chattanooga Royal Co. Mr. Hollerbach was previously associated with Miami Products, Inc., where he served as sales manager.







Albert I. Whiteley

ALBERT I. WHITELEY as vice president in charge of sales and a director of the International Heater Co. Mr. Whiteley, who succeeds J. J. Hildebidle as chief sales executive, joined the firm in 1937.

HUGH C. SWAIN, 337 Heath Terrace, Kenmore, N.Y. as a zone representative for Delco Appliance Div., General Motors Corp. Mr. Swain will handle the sale of residential heating and cooling equipment in the Buffalo area.

KENNETH E. HILL as factory sales engineer for the southern California area for The Payne Co. He will serve the San Fernando Valley and west Los Angeles area.

(Abituary

Robert E. Thulman

ROBERT K. THULMAN, 59, president of the Chimney Sales Corp., Washington, D. C., died on February 21, 1958. For almost 20 years prior to his association with Chimney Sales, Mr. Thulman was a mechanical engineer in the Technical Div., National Housing Agency, Federal Housing Administration. An active member of the American Society of Heating and Air-Conditioning Engineers, he served on numerous committees including the Joint Committee on Standards for Residence Heating. He was co-author of a paper on Heating Low-Cost Homes and author of several articles on heating which have appeared in various technical publications.



for Air Conditioning Equipment

ABSORBS 24% MORE VIBRATION

Independent laboratory check proves this light duty V-Belt absorbs 24% more vibration and noise than next best "Low Vibration" Belt.

For Air Conditioning Equipment, Forced Air Furnaces, Window and Attic Fans also Washing Machines, Driers and light work-shop Equipment.

METAL PRODUCTS CO. 20850 ST. CLAIR AVE., CLEVELAND 17, OHIO

BACHARACH

World's Largest Manufacturer of stamped one-piece Pulleys



T M Pending

· Body is transparent, high-strength plastic extrusion.

• Scale features easy readability; made of white plastic, with black scale divisions and numerals; 1/10" W scale divisions.

• Indicating Fluid of 1.9 specific gravity permits pressure readings to 1/10" W over entire scale on gauge of convenient size. Fluid is colored blue for visibility; is non-freezing to low temperature. Gauge is furnished filled ready for use.

• Shut-off Valves are conveniently opened or closed by rotation of knurled discs.

· Scale is adjustable up or down to permit direct reading of pressure.

 Blow-over seal automatically pre-vents spilling of fluid when gauge is subjected to pressure surges in excess of scale range.

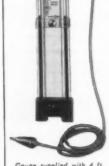
Body serves as reel for rubber hose.

· For convenient attachment of gauge to gas pipe an adjustable mounting clamp is available as optional accessory.

Ask your Jobber or write for Leaflet 830

BACHARACH INDUSTRIAL INSTRUMENT COMPANY

200 N. Braddock Ave., Pittsburgh 8, Pa.



Gauge supplied with 4 ft. test connection.

Gauge with scale 0.7" W \$12.50 TRADE NET Gauge with reversible scale

— 0-15" W on one side,
and 0-8.5 ounces per sq. \$16.00 TRADE NET

Classified Advertising

Rates for classified advertising are 12 cents for each word, including beading and address. One inch \$6.00. Count nine words for keyed address. Minimum \$2.00. Closing date 20th of month preceding publication.

AGENTS WANTED

DISTRIBUTORS WANTED FOR Dust Collecting equipment. Well known line 18 Standard Models for large or small installations. Priced from \$1250 to \$1250. Complete self contained portable "packaged" units. Easy to install. Attractive discounts. Write for catalogue. Agents state territory coverage. CHICAGO AIR FILTER COMPANY, Brookfield, III.

AGENTS WANTED - We are seeking manufac-AUCRITA WANTED — We are seeking manufacturers representatives in several territories to handle the CLIMATIZER Electric Humisiñer featured in our advertisement on page 117. If you interested in adding this profitable item, write us, stating the territory you cover and other lines stating the territory you cover and other lines. stating the territory you cover and other line carried. The Keeney Manufacturing Company, New

MANUFACTURERS AGENTS SELLING furnace and air conditioning manufacturers wanted by blower manu-facturer. State qualifications, territory covered, lines handled Address Key 1116, American Artisan, 6 N. Michigan Ave., Chicago 2, III.

SITUATION OPEN

SHEET METAL ESTIMATOR wanted. Must be competent in general sheet metal, duct work, and stain-less steel fabrication — midwest location with 80,000 population, well established and equipped shop. State age, marital status, education and complete busines experience. Enclose picture with first letter. Repl to Key 1109, American Artisan, 6 N. Michigan Ave Chicago 2, Ili.

BUSINESS OPPORTUNITIES

FOR SALE: MODERN completely equipped sheet metal shop in Chicago. Owner wants to retire. Write Key 1112, American Artisan, 6 N. Michigan Ave., Chicago

FOR SALE: HOLLOW Metal Window Business - Underwriters' approved. Complete with Underwriters' rocedure, dies, machinery, cutting lists, price lists and everything pertaining to the manufacture of same. Owner going out of business Location — Chicago. Write Key 1113, American Artisan, 6 N. Michigan Ave., Chicago 2, III.

FOR SALE - SKYLIGHT business in Chicago complete with all dies and machinery. Full ventilated and stationary Skylights. One of the best skylights made. Owner retiring. Write Key 1114, American Artisan, b N. Michigan Ave., Chicago 2, III.

FOR SALE — HOLLOW Metal Door and Frame Business — Underwriters' approved. Complete with Underwriters' Procedure, dies, machinery cutting lists, price lists and everything pertaining to the manufacture of same Building if desired. Owner going out of business. Location — Chicago, Write Key 1115, American Artisan, 6 N. Michigan Ave., Chicago Z, III.

HEATING & SHEET METAL business in northern Illinois industrial city over 100,000 pop. Shop completely equipped for sheet metal work required in heating, ventilating, air conditioning, etc. Excellent opportunity to acquire going business without the heavy investment of time and money required in a new venture. Address Key 1110, American Artisan, 6 M. Michigan Ave., Chicago Z. Illinois.

MISCELLANEOUS

WANTED: CLOSE OUT lots of warm air residential heating equipment. Write giving description and price to E. L. Bilek, 2025 Zollinger Road, Columbus 21, Ohio.

AGENT WANTED

ESTABLISHED HEATING AND cooling register and grille line. Manufacturer wishes to contact agents in open territories. State present lines covered and general qualifications. Address Key 1098. American Artisan, o. N. Michigan Ave., Chicago 2, 1II.

. . . move your products in greater volume

through consistent advertising in this

Service Section

Rates for display space in the Service Section are \$12.00 per inch per insertion. One-inch minimum space accepted. Closing date twentieth of the month preceding issue.



COMPLETE LINE OF SHEET REINER & CAMPBELL CO., Inc.

Post Office Box 5035, Newerk 5, N. .J FLOAT VALVES for

Evaporative Coolers, Poultry Troughs, etc.

Quick Set Dividers

Fastest, most accurate on the market. Two sizes for circles up to 36" and 48". Removable steel points, or pencil. No center punch.

Operates in 1" of water.

DAN MOREY

314 S. Robertson Los Angeles 35, Calif.

SHEET METAL **MACHINES & TOOLS**

Lockformer Machines Chicago Hund Brukes Chicago Press Brukes Paxto Power Shoars Pexto Foot Shoars Pexto Rotary Muchin Pexto Silp Rells Pexto Ber Folders Smith Cleat Bendors

ormer Machines
pe Hand Brakes
pe Press Brakes
Power Shears
Foot Shears
Whitney Poot Presset
Retury Machines
Slip Rofts
Bar Folders
Clout Benders
Mipartum Pitthourgh Lock Hammers
Mipartum Pitthourgh
Lock Hammers

SEND FOR CATALOG

CENTRAL-WEST MACHINERY CO. 333 S. WESTERN AVE. CHICAGO 12, ILL. PHONE: HAymerket 1-0900

Palm Beach

420,000 RTH

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is positively assured by installing Monmouth Humidifiers, Simple installation and greater customer satisfaction mean larger profits.

CLEVELAND HUMIDIFIER CO. 7802 Wade Park Ave. Cleveland 3, Ohio

 PROVEN OVER 5 YEARS BY OVER 1500 BETTER DEALERS



. REGULATES BLOWER SPEEDS IN DIRECT PROPORTION WITH PLENUM TEMPERATURES

Write for descriptive

literature, prices and discounts. Effective control of humidity

SO SOFT RUBBER KNEE PROTECTORS

EVERY ROOFER SHOULD HAVE A PAIR.

PRICE \$2.50. ORDER YOURS TODAY.

JOHNSON

LADDER SHOE CO.

- PROVIDES UNMATCHED COMFORT AND EFFICIENCY
- MAKES UP MOMENT TO MOMENT HEAT LOSS WITH NO OVER-RIDE OR UNDER-RIDE
- . 1/2 HOUR INSTALLATION
- \$37.50 IN LESS THAN 1/2 DOZEN QUANTITIES 30 DAY MONEY BACK GUARANTEE
- LONG RUNS COLD ROOMS SPLIT LEVELS

NATIONAL MODULATION CO.

2730 N. HY. 61

St. PAUL 9, MINN.

5 Year Guarantee TODAY



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...for commercial air conditioning

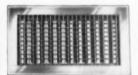




The ease with which any desired airflow, both directionally and volumetrically, can be obtained with these registers and grilles is one reason they have become exceedingly popular. The wide range covered by the quickly obtainable standard sizes is another (380 combinations). Fine appearance, excellent construction and absolutely reliable engineering data are other elements that are making this H&C line first choice of a host of air conditioning dealers for all of their commercial installations. See your H&C Jobber or write for our current Catalog "B".

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EACH AVAILABLE IN 26 STOCK SIZES PLUS "ON-ORDER" SIZES TO MEET EVERY REQUIREMENT



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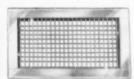
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No. 92VOV SINGLE DEFLECTION REGISTER



No. 92HOV SINGLE DEFLECTION REGISTER



No. 92VHO DOUBLE



No. 92HVO DOUBLE



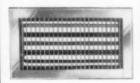
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No. 92HOO SINGLE DEFLECTION GRILLE

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EACH AVAILABLE IN 17 STOCK SIZES BILLS "ON ORDER" SIZES TO MEET EVERY REQUIREMENT



No. 93V RETURN



No. 94V RETURN AIR REGISTER



No. 93 RETURN AIR GRILLE



No. 94A RETURN AIR GRILLE

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Sell heating-cooling modernization the easy way with White-Rodgers

PUSHBUTTON

DOI HEAT AUTO ON

HEATING-COOLING THERMOSTAT

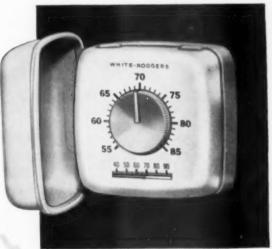
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